

HELMINTHOLOGICAL ABSTRACTS

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HELMINTHOLOGICAL ABSTRACTS

Vol. II, No. 5.

304—Agricultural Gazette of New South Wales.

- a. SEDDON, H. R.—“Parasitic gastro-enteritis in sheep.” XLIV (4), 288-292. [1933.]
- b. EDGAR, G.—“Black scours in young sheep : *Trichostrongylosis*.” XLIV (5), 383-385. [1933.]

(a) Seddon gives a semi-popular account of the worms causing gastritis and enteritis in sheep in New South Wales. After listing the nematodes, in their relative order of disease-producing importance, encountered in the State, the author deals with the 3 most serious parasites, viz., *Haemonchus*, *Trichostrongylus* spp. and *Oesophagostomum columbianum*, giving descriptions, locations, geographical distribution, seasonal incidence and symptoms produced for each and summarizing their main differences in a table. While all breeds of sheep are susceptible *Haemonchus* and *Oesophagostomum* affect British breeds more severely while *Trichostrongylus* is particularly severe on Merino weaners. J.N.O.

(b) Edgar has investigated the losses in young sheep in New South Wales due to “black scours,” a dark green, almost black diarrhoea soiling the crutch, hocks and legs. The condition is attributed to heavy infestations with *Trichostrongylus vitrinus*. Affected sheep were generally unthrifty and stunted and did not fatten well. According to the locality, heavy mortality in hoggets of 5 to 12 months old, weaners and even suckling lambs occurred. In 1932 mortality in some young flocks was 35 per cent. The author considers that seasonal influences, such as regular rainfalls exceeding the normal and the lack of prolonged dry periods, have a bearing on the establishment of infestations and mentions that sheep which survive trichostrongylosis during the first 18 months of their existence do not show evidence of infestation during later life. J.N.O.

305—Agricultural Notes. Puerto Rico Agricultural Experiment Station.

- a. VOLKENBERG, H. L. VAN.—“Colics in horses caused by parasites.” No. 64, 3 pp. [1933.]

(a) Van Volkenberg gives an account of the colics of horses and mules in Puerto Rico, caused directly or indirectly by helminths, and discusses their nature, prevention and treatment. These colics seem to occur as enzoötics during the end of November and beginning of December, but in St. Croix they occur following the lighter rains during the rainy season and are apparently due to various strongyles, heavy infestations of which are common. In all autopsies on horses, aneurisms due to the nematodes have been found by the author, and these may result in embolisms. He considers that pathological changes, singly or collectively, produce an acute condition in which colic is the predominant symptom. In one outbreak investigated *Anoplocephala perfoliata* was suspected as an important contributory cause. J.N.O.

306—American Journal of the Medical Sciences.

- a. KILDUFFE, R. A.—“The Bachman intradermal reaction in human Trichinosis. CLXXXVI (6), 802-808. [1933.]

(a) Kilduffe has obtained positive results with Bachman's skin test from 33 persons suffering from trichinosis and has shown that there is some correlation between this response and the degree of eosinophilia.

Eosinophilia is constantly associated with this disease and has been shown to vary fairly accurately with the intensity of infection. Its rise and fall in trichinosis suggests a response to toxic products while the Bachman reaction on the other hand, is an allergic demonstration of the sensitization to larval protein. As demonstration of eosinophilia is simple technically, delicate and constant in appearance, he considers it to be a reliable index of trichinosis in the human patient.

P.A.C.

307—Anales del Instituto de Biología.

- a. SOKOLOFF, D. & CABALLERO, E.—“Primera contribución al conocimiento de los parásitos de *Rana montezumae*. (Trematoda).” IV (1), 15-21. [1933.]

(a) Sokoloff and Caballero, in their first contribution to the knowledge of the parasites of *Rana montezumae*, deal with two trematodes, *Diplodiscus temperatus* Stafford, 1905 and *Gorgoderina attenuata* Stafford, 1902. The former was recovered from the cloaca, the latter from the urinary bladder of the frog. Both flukes are redescribed.

J.N.O.

308—Anatomical Record.

- a. AMERICAN SOCIETY OF ZOOLOGISTS.—“Program for the thirty-first annual meeting.” LVII, Supplement, pp. 1-112. [1933.]

(a) The programme of papers to be read or presented by title includes the following items of helminthological interest: (i) E. L. Miller “Some studies on North American larval trematodes” (Paper No. 157); (ii) H. J. Bennett “New trematodes from Louisiana reptiles” (No. 159); (iii) H. W. Manter “Observations on the trematode fauna of deep-sea fishes of Tortugas, Florida” (No. 160); (iv) H. W. Stunkard & F. W. Dunihue “Gyrodactylus as a parasite of the tadpoles of *Rana catesbeiana*” (No. 161); (v) H. W. Stunkard “Further observations on the life cycle of *Cercariaeum lintoni*” (No. 163); (vi) C. T. Hurst & C. R. Walker “A temperature reaction in a cold-blooded animal” (No. 164). Abstracts of these papers are given.

B.G.P.

309—Annaes da Academia Brasileira de Sciencias.

- a. TRAVASSOS, L.—“Sobre os *Ascaroidea* parasitos dos crocodilos Sul-Americanos.” V (3), 153-163. [1933.]

(a) Travassos, in reviewing the ascaroid parasites of South American crocodiles, describes *Dujardinia baylisi* n. sp. (provisional), and erects *Paradujardinia* n. g. for *Ascaris halicoris* Owen, 1833. *Dujardinia longiscipula* [= *longispicula*?] and *Multicoecum* [= *Multicaecum*] *baylisi* are described and figured, and are quoted as Travassos, 1933, but it is not clear

whether they are here designated as new species. Discussing *Ascaris helicina* Molin, he differentiates the *A. helicina* for which Geddoelst erected *Dujardinia* as *D. dujardinia* n. sp., and the *A. helicina* for which Skrjabin erected *Trispiculascaris* as *T. trispiculascaris* n. sp. The principal measurements of species of *Dujardinia* are set out in a table. B.G.P.

310—Annales d'Anatomie Pathologique (et d'Anatomie Normale) Médico-Chirurgicale.

- a. DÉVÉ, F.—“Formes anatomo-pathologiques intermédiaires et formes de passage entre l'échinococose hydatique et l'échinococose alvéolaire (bavaro-tyrolienne) chez l'homme.” x (9), 1155-1178. [1933.]

(a) Dévé, from a study of 3 cases of human hydatidosis, concludes that there exist forms transitional between unilocular hydatid and alveolar or multilocular hydatid and, in the absence of experimental evidence, considers it advantageous to strengthen the opinion, so much disputed, about the parasitic unity of hydatid in man. J.N.O.

311—Annales de la Faculté des Sciences de Marseille.

- a. PALAIS, M.—“Les anomalies des cestodes.” vi, 109-163. [1933.]

(a) Palais has made a statistical survey of the occurrence of a number of morphological abnormalities in *Hymenolepis diminuta*. Natural and artificial infections are compared: rats being used as experimental animals and the beetles *Tenebrio molitor* and *T. obscurus* as intermediate hosts. Certain oncospheres were subjected to \times and to ultraviolet irradiation before being fed to the beetles and the resulting adults examined. Palais concludes:—(i) that \times and ultraviolet irradiations have no effect on the proportion of subsequent abnormalities. (ii) Certain abnormalities are the result of intensity of infestation, while with others there is no connection. (iii) Normal sexual function is effected in cases of abnormal genitalia. (iv) No abnormalities are observed in the cysticercoids.

A detailed description of a “double” specimen of *Taenia saginata* is also given. The worm, acquired in Brazil, consisted of 2 strobilae, one attached along the length of the other and at right angles to it, the genital pores being at the margin of the “crest” thus formed. S.G.S.

312—Annales de la Société Belge de Médecine Tropicale.

- a. VAN HOOFF, L.—“Un cas de distomatose pulmonaire au Congo Belge.” xiii (4), 473-478. [1933.]

(a) The first case of parasitic haemoptysis observed in the Belgian Congo is now recorded by Van Hoof. The eggs found in the sputum are illustrated. They measure not more than $70\mu \times 40\mu$ and thus differ from those seen in oriental paragonimiasis. R.T.L.

313—Annali di Medicina Navale e Coloniale.

- a. PANAGIA, A.—“Su di una nuova specie del Gen. *Polydelphis* (*P. mucronata*).” Year 39, I (1/2), 76-78. [1933.]
- b. MURO, P. DE.—“*Molineus vogeliani* spec. nov., nuovo nematode nell'intestino del *Perodicticus potto* (Prosimi).” Year 39, I (5/6), 316-323. [1933.]

(a) Panagia describes *Polydelphis mucronata* n. sp. from *Python reticulatus* and differentiates it from *P. anoura* and *P. oculata*, both from the same host. B.G.P.

(b) De Muro describes *Molineus vogelianus* n. sp. from *Perodicticus potto* and differentiates it in a table from *M. felineus* which it most nearly resembles. He relegates *M. europaeus* and *M. americanus* to the synonymy of *M. patens*. B.G.P.

314—Annotationes Zoologicae Japonenses.

a. IWATA, S. & TAMURA, O.—“Some intestinal parasites in the duck from Japan.” xiv (1), 1-6. [1933.]

b. KATAOKA, N. & MOMMA, K.—“A cestode parasitic in *Plecoglossus altivelis*.” xiv (1), 13-22. [1933.]

(a) In studying a collection of parasites from ducks in Japan, Iwata and Tamura describe a new species of Cestoda, which they name *Raillietina osakensis*. It is characterized by the extreme specialization of its anatomy, especially the testes and the number of eggs in the capsule. There are 40-50 testes in each proglottid and 4 eggs in each capsule. P.A.C.

(b) Kataoka and Momma record the presence of a cestode parasite from the fry and adults of *Plecoglossus altivelis*, a salmonoid fish. They provisionally identify it as *Proteocephalus neglectus* La Rue 1911, though there are some points of difference. The chief differences are the size of the onchosphere, the arrangement of the testes and the configuration of the ejaculatory duct. They suggest that a small crustacean of the plankton may prove to be the intermediate host. P.A.C.

315—Annual Report of the Agricultural and Horticultural Research Station, Long Ashton. 1932.

a. OGILVIE, L. & MULLIGAN, B. O.—“Progress report on vegetable diseases. IV.” pp. 103-120. [1933.]

(a) Ogilvie and Mulligan give a further account of the distribution of *Heterodera schachtii* attacking peas in Worcestershire.

The eelworm's association with “foot rot” due to fungal parasites is noted. Infection was experimentally produced on peas and some non-susceptible weeds are listed. Manurial treatments with sulphate of ammonia, sulphate of potash and dung gave no significant control of the disease conditions produced by the combined infections of eelworm and fungus. M.J.T.

316—Archiv für Experimentelle Pathologie und Pharmakologie.

a. KINGISEPP, G.—“Zur Frage der experimentellen Anämien durch Parasitengifte.” CLXX, 733-743. [1933.]

(a) Kingisepp discusses the problem of experimental anaemias supposedly due to helminthic toxins.

He first summarizes Nyfeldt's work on toxic anaemias in the rabbit. Nyfeldt failed to produce anaemias with Seyderhelm's “Bothriocephalin” but obtained anaemias of the pernicious type (hyperchromic and megalocytic)

with his "Bothriotoxin I," the fraction precipitated by 50 per cent. alcohol from a salt extract of the tapeworm, and with "Bothriotoxin II," the fraction soluble in 50 per cent. alcohol.

Kingisepp's own work was to test the therapeutic or prophylactic effect of liver extract on anaemia produced in rabbits with Bothriotoxin I. Repeated increasing injections resulted in an anaemia which was neither hyperchromic nor megalocytic, and which was unaffected by liver extract. There was neither eosinophilia nor lymphocytosis. A similar anaemia was produced with a similarly prepared extract of fresh calf's liver, and with a water extract of *Gastrophilus* larvae.

Kingisepp attributes anaemias of this kind to toxins produced by bacteria, which always contaminate these extracts. Phenolized extracts largely failed to produce any effect, though it was produced if injections of normal extracts were preceded by injections of suitably diluted phenol. Thus, these experimental anaemias are not specific, and have no relation to the "pernicious" anaemia of *Bothriocephalus* carriers.

B.G.P.

317—Archiv für Geflügelkunde.

- a. WETZEL, R.—"Der weniggliedrige Hühnerbandwurm (*Davainea proglottina*) und seine Bekämpfung." VII (1), 14-22. [1933.]

(a) Wetzel again gives an account of the life-history of *Davainea proglottina* [see Helm. Abs., Vol. I, No. 187c], this time from a practical standpoint, and makes suggestions for its control.

Infected poultry should be removed to new runs, which should be dry and free from slugs and snails. Anthelmintic treatment, which should be left in the hands of a veterinary surgeon, will necessarily be prolonged since, in birds, drugs are greatly reduced in concentration by the time they reach the intestine and, moreover, these minute tapeworms are securely embedded between the intestinal villi. The poultry farmer can best concentrate his efforts on a campaign against the snail and slug intermediaries, bearing in mind that some species live for 2 or 3 years. Anderson & Taylor's powdered copper sulphate and Kainit, in the proportion of 1 : 5 should be applied to open runs at the rate of 2½-3 cwt. per acre. Bait such as sliced potato, or beer in dishes which are sunk to the rim in the ground may also be used, in the latter case intoxicated molluscs should be removed each morning. Ducks and turkeys can safely be employed to eat the molluscs as they are not infected by this tapeworm.

B.G.P.

318—Archiv für Wissenschaftliche und Praktische Tierheilkunde.

- a. KORKHAUS, R.—"Bemerkungen zur Biologie der Metastrongyloiden und zur Diagnostik des Lungenwurmbefalles. Eine Entgegnung an E. Lühns." LXVI (4), 439-442. [1933.]
- b. LÜHNS, E.—"Leberegel- und Lungenwurmseuche (Erwiderung auf vorstehende Entgegnung)." LXVI (4), 443-444. [1933.]

(a) Referring to a series of papers by Lühns on the control of fluke and lungworm [see Helm. Abs., Vol. II, Nos. 67a & 226a], Korkhaus regrets that the papers are full of parasitological fallacies. Thus, having given the

impression that he was dealing with sheep and cattle lungworms, Lührs proceeds to discuss control of earthworms (intermediaries for only pig lungworms), and to speak of lungworm "eggs" in the faeces, eggs upon which he carried out numerous control experiments. B.G.P.

(b) In reply to the preceding criticisms by Korkhaus, Lührs states that he was referring to lungworms in general, that he was fully acquainted with the various lungworm life cycles, and that "eggs" was an unfortunate *lapsus calami* for "larvae"—so far as faeces were concerned. He actually experimented upon eggs and larvae from the bronchi, and larvae from the faeces. B.G.P.

319—Archives de Médecine et de Pharmacie Navales.

- a. MARCANDIER & PIROT, R.—"Les rats de Toulon et leurs parasites." CXXIII (1), 42-52. [1933.]

(a) The writers examined numerous examples of grey rats (*Mus norvegicus*) and black rats (*M. ratus*) from the port of Toulon and from ships of the French Mediterranean fleet. The paper mostly deals with arthropod ectoparasites and protozoa. *Hepaticola hepatica* was never found in 500 rats, black and grey; *Cysticercus fasciolaris* was present in the livers of 4.3 per cent. of grey rats collected on shore, and in 2 per cent. of those found on ships but was not found in black rats. *Protospirura muris* was present in one grey rat associated with adenomata of the liver and stomach. The writers induced its larvae to develop in *Xenopsylla cheopis* but give no details of this. S.G.S.

320—Archives of Pathology.

- a. GORDON, H.—"Appendical oxyuriasis and appendicitis, based on study of 26,051 appendixes." XVI (2), 177-194. [1933.]

(a) To his study of the incidence of *Oxyuris* in 20,969 extirpated appendixes, published in 1931, Gordon has now added a report on 5,082 further cases. Of these 90 were infested with *Oxyuris*, and he discusses the aetiological relationship between the worm and appendicitis. In a very few instances punctate haemorrhages and necrotic foci appeared to be caused by the worms ("Appendicopathia oxyurica"); in a few others the worms were found in the wall of the appendix, but without causing any inflammatory changes. It is therefore probable that the invasion of the wall was post-operational. In the majority of cases the worms were in the lumen without producing visible lesions. Gordon finds that no case of true appendicitis oxyurica occurred in his material, and that *Oxyuris* is negligible as a cause of appendicitis. B.G.P.

321—Archives Roumaines de Pathologie Expérimentale et de Microbiologie.

- a. CIUREA, I.—"Les vers parasites de l'homme, des mammifères et des oiseaux provenant des poissons du Danube et de la Mer Noire. Premier mémoire. Trématodes, famille Heterophyidae Odhner, avec un essai de classification des trématodes de la superfamille Heterophyoidea Faust." VI (1/2), 1-134. [1933.]
 b. CIUREA, I.—"Sur quelques larves des vers parasites de l'homme, des mammifères et des oiseaux ichthyophages, trouvés chez les poissons des grands lacs de la Bessarabie, du Dniester et de son liman." VI (1/2), 151-170. [1933.]

(a) In this memoir Ciurea deals with the Heterophyidae carried by Danubian and Black Sea fish.

Over 8,000 fish have been examined, and about 500 mammals and birds. Some of the definitive hosts have been found naturally infected, others have been infected experimentally. These, and the uninfectable forms, are set out in detail. The parasites, adult flukes and metacercariae, are described fully and include two new combinations: *Metascocotyle witenbergi* nomina nov. for *Parascocotyle longa* (Ransom) of Witenberg, 1929, and *Parascocotyle sinoëcum* n. sp. in dogs.

In a final section Ciurea reviews the family Heterophyidae and superfamily Heterophyoidea, and sets out a classification giving diagnoses of families and subfamilies. This section includes the following new names: *Cryptogonimidae* n. fam., *Galactosominae* n. subfam., and *Pricetrema* n.g. for *Apophallus zalophi*. B.G.P.

(b) Ciurea describes larval helminths from fish in the Bessarabian lakes and from the Dniester, the adults parasitizing mammals and ichthyophagous birds. Apart from *Eustrongylides excisus* and *Ligula intestinalis*, the larvae are trematodes and include a new genus *Prodiplostomum* for the Alarian *Tyloodelphys clavata*, and a new type of Strigeid larva called *Prohemistomulum* and represented by *P. circulare* n. sp. B.G.P.

322—Archives de Zoologie Expérimentale et Générale.

- a. BRUMPT, E.—“Évolution de l'*Hymenolepis nana* var. *fraterna*. Les deux cysticeroides. Leur importance biologique concernant l'origine du parasitisme et la signification des hôtes intermédiaires.” LXXV (13), 235-246. [1933.]
- b. HATT, P.—“Deux cas d'anomalie chez l'oeuf d'*Ascaris megalcephala*.” LXXV (26), 405-426. [1933.]
- c. GUIART, J.—“Contribution à l'étude des cestodes de calmars, avec description d'une espèce nouvelle *Diplobothrium pruvoti*.” LXXV (28), 465-473. [1933.]

(a) Brumpt here contributes some observations on the development of the *Hymenolepis nana* of rodents. Grassi (1887) found that unweaned mice could not be infected but Brumpt shows that a milk diet does not protect weaned mice from infection. He also shows that mice artificially infected, and left under conditions favourable to re-infection, fail to reveal any cysticercoids in the villi at autopsy: the initial infection confers an immunity. Nevertheless, a mouse artificially infected with *Strongyloides ratti* developed an intense infection of *H. nana*, numerous adults and thousands of cysticercoids being found at autopsy: possibly the immunity was broken down by the nematode infection. Following upon the successful infection of insects with *H. nana* larvae by Bacigalupo and Joyeux & Baer, Brumpt has infected 2 out of 20 *Tenebrio molitor*. He points out that such larvae are much larger than villous cysticercoids and have a large caudal vesicle bearing the embryonic hooks. Finally he discusses the origin of parasitism in cestodes in the light of the alternative life cycles of *H. nana*. B.G.P.

(b) Hatt has studied the development of two types of abnormal eggs of *Ascaris megalcephala*; the first showing no polar bodies and the second showing a giant polar body.

In the first case no development was observed in the majority of the eggs after 5 hours at 30°C. while some segmented at the first division into several blastomeres. Eight chromosomes were frequently observed in the metaphase and the author suggests that this abnormal number may be due to the retention of the chromatin within the egg. In such cases the addition of the haploid group carried by the sperm gave a total of ten chromosomes in the fertilized ovum.

In the second case a description is given of the variations found in the development of eggs showing a particularly large first polar body. D.O.M.

(c) Guiart describes two larval cestodes from calamaries: a plerocercoid of *Phyllobothrium loliginis* (Leidy) from *Ommastrephes sagittatus*, and a new larval form *Diplobothrium pruvoti* n. sp. from *Loligo vulgaris*. He discusses the systematic position of *Diplobothrium* and related genera. B.G.P.

323—Archivio Italiano di Scienze Mediche Coloniali.

a. SAVANI, G.—“Distribuzione della microfilaria dei cani in Carpi, Novi, Concordia e dintorni.” XIV (5), 357-364. [1933.]

b. SCADUTO, P.—“Alcuni animali da cortile ed i passerii quali vettori della diffusione a distanza delle uova di ankylostoma.” XIV (11), 705-711. [1933.]

(a) Savani estimates that 22 per cent. of the dogs in the Modena area are infected with *Dirofilaria immitis*. He finds that various breeds of dog are equally susceptible and that infection is commoner in low lying parts. *Rhipicephalus sanguineus* and *Ixodes ricinus* were found to carry microfilariae. B.G.P.

(b) Scaduto has found that sparrows, chicken, turkeys, ducks and, to a less extent, rabbits are capable of disseminating viable eggs of *Ancylostoma duodenale*. The animals were fed human faeces containing eggs and the eggs were recovered, morphologically unchanged, in the animals' faeces; they were then cultured and larvae resulted. The animals were subsequently slaughtered and examined for the presence of strongyles that might have led to confusion. B.G.P.

324—Archivos da Escola Superior de Agricultura e Medicina Veterinaria.

a. TRAVASSOS, L.—“Contribuição ao conhecimento do *Deletocephalus dimidiatus* Diesing, 1851, parasito da *Rhea americana* Lath.” X (1), 89-97. [1933.]

b. ALMEIDA, J. LINS DE.—“Sobre as especies do genero *Halocercus* Baylis & Daubney, 1925. (Nematoda: Pseudalidae).” X (2), 153-160. [1933.]

c. FREITAS, J. F. TEIXEIRA DE & ALMEIDA, J. LINS DE.—“Novo nematodeo parasita de ave do Brasil: *Capillaria aramidesi* n. sp.” X (2), 169-170. [1933.]

d. ALMEIDA, J. LINS DE.—“Notas e informações—Da frequencia de algumas Nematodeos parasitas de *Gallus domesticus* L. no Rio de Janeiro.” X (2), 171. [1933.]

e. FERREIRA, W. A.—“Notas e informações—*Zigocotyle lunatum* (Diesing, 1835) (Trematoda) parasito de *Gallus domesticus* L. no Brasil.” X (2), 172. [1933.]

f. MELLO, ALI DE.—“Notas e informações—Da occurencia de *Echinostoma revolutum* (Frölich, 1802) (Trematoda) em *Gallus domesticus*, L. no Brasil.” X (2), 172. [1933.]

g. ALMEIDA, J. LINS DE.—“Notas e informações—*Passahurus ambiguus* (Rud., 1819) (Nematoda-Oxyuridae), sua occurencia em *Lepus (Oryctolagus) cuniculus dom.* L. no Brasil.” X (2), 173-174. [1933.]

(a) Travassos contributes a fully illustrated re-description of *Deletrocephalus dimidiatus* Diesing, 1851, based on material from the large intestine of the American Ostrich in South America. The species shows great variability in the form of the bursal rays, especially the dorsal. In the structure of the buccal capsule it shows resemblances to the Syngamidae. B.G.P.

(b) Lins de Almeida reviews the species of *Halocercus* nematodes parasitic in the lungs of the Cetacea.

After setting out the systematics of the genus, its diagnosis is given. Then follow brief particulars of the following species taken from the papers of earlier workers:—*Halocercus delphini*, *H. lagenorhynchi*, *H. inflexocaudatus*, *H. gymnurus* and *H. pingi*. He then describes in detail the morphology of *H. brasiliensis* Lins, 1933, of which a short account only had previously appeared. There is a useful table of comparative dimensions of all the species and, in addition, there are three plates of line drawings. T.G.

(c) Teixeira and Lins de Almeida describe and figure *Capillaria aramidessi* n. sp., from the caecum of *Aramides cayanae*, a bird common in Rio de Janeiro.

The new species is very briefly described and principal dimensions are given as follows:—length, female, 4.2 mm., male, 6.1 mm. Vulva without prominences or appendages, at 0.042 mm. behind the oesophagus. Tail obtuse and anus terminal. The spicules measure 0.56 mm. and the spicule sheath is spiny. The tail has two ventro-lateral prominences, cloaca sub-terminal. The authors state that this is a well characterized and distinct species. T.G.

(d) Lins de Almeida sets out in tabular form the comparative frequency of the occurrence in *Gallus domesticus*, killed at Rio de Janeiro, of the following nematode parasites:—*Oxyspirura mansoni* 27.35 per cent., *Tetrameres confusa* 61.45 per cent., *Dispharynx spiralis* 7.26 per cent. and *Strongyloides oswaldoi* 1.33 per cent. Note is also taken of the occurrence of *Ascaridia galli*, *Heterakis gallinae* and *Capillaria retusa*. T.G.

(e) The Paramphistome fluke, *Zygocotyle lunatum*, known already as a parasite of cattle and domestic ducks, is here recorded by Ferreira from the caecum of the common fowl, *Gallus domesticus* in Brazil. T.G.

(f) Mello puts on record, for the first time in Brazil, the occurrence of *Echinostoma revolutum* in *Gallus domesticus*. A single specimen only of the parasite was found. T.G.

(g) Lins de Almeida records, for the first time in Brazil, the occurrence of the Oxyurid nematode, *Passalurus ambiguus*, in the domestic rabbit, and suggests that *P. nonanulatus* Skinder [Skinker], 1931 is probably synonymous with *P. ambiguus*. T.G.

325—Atti del V Congresso Mondiale di Pollicoltura.

- a. CRAM, E. B. & CUVILLIER, E.—“Ornithostrongylosis of the pigeon (*Columba livia* Dom.)” III (75), [Reprint 8 pp.] [1933.]
- b. TAYLOR, E. L.—“*Davainea proglottina* and diseases in fowls. The pathogenicity of the common poultry parasites; an unknown factor in the causation of disease.” III (100), [Reprint 7 pp.] [1933.]

(a) Cram and Cuvillier have considered in all its aspects, a disease of pigeons caused by the roundworm *Ornithostrongylus quadriradiatus*.

The life history of the parasite is direct and can be completed in as little as 7 days under favourable conditions. The clinical symptoms and the pathology of the disease are described. Tetrachlorethylene seems promising as an anthelmintic, thymol being of doubtful value. The authors were unable to transmit the disease to chickens, turkeys, guinea-fowls or ducks. So far it has not been recorded from Europe.

P.A.C.

(b) Taylor has shown that the presence of from 3,000-4,000 individuals of *Davainea proglottina* in a chicken 12 weeks old, does not produce any noticeable signs of disease.

The effect of maintaining an infestation at this level over a long period by repeated infections has not yet been investigated. He finds that the elimination of a single experimental infection is a gradual process, extending over a period of about 22 weeks.

P.A.C.

326—Australian and New Zealand Journal of Surgery.

- a. FAIRLEY, K. D. & KELLAWAY, C. H.—“The value of laboratory investigations in the diagnosis of hydatid infestation.” II (3), 236-243. [1933.]

(a) In considering the diagnosis of hydatid infections, Fairley and Kellaway note that identification of scolices and hooklets in discharges from the patient occurs but rarely.

The Complement Fixation Reaction is especially valuable in diagnosing recurrent or residual cysts in patients who have already undergone operations, the skin tests being useless. They have found that persistent fixation of 6 M.H.D. of complement for over 9 months, of $4\frac{1}{2}$ M.H.D. for a year or more, or 3 M.H.D. for more than 2 years after operative treatment, indicates the presence of further infestation. Failure to obtain positive results with this test does not necessarily mean that no more cysts are present, however. The Casoni reaction is useful only in cases which have never been operated on for cysts but it is useful in first infections. A negative result to this test, indicating absence of infection, is 95 per cent. accurate. The presence of an eosinophilia is corroborative evidence but its occurrence in many diverse conditions impairs its diagnostic value in hydatid infections.

P.A.C.

327—Australian Veterinary Journal.

- a. ROSS, I. C. & KAUZAL, G.—“Preliminary note on the pathogenic importance of *Chabertia ovina* (Fabricius, 1788).” IX (6), 215-218. [1933.]
- b. GORDON, H. McL.—“Differential diagnosis of the larvae of *Ostertagia* spp. and *Trichostrongylus* spp. of sheep.” IX (6), 223-227. [1933.]
- c. McLENNAN, G. C.—“*Syngamus trachea* (Montagu, 1811), ‘Gape-worm.’ A note on its presence in *Heteropsar albicapillus* (white-capped starling of Africa) at the South Australian Zoological Gardens, Adelaide.” IX (6), 227-228. [1933.]

(a) Definite experimental evidence is put forward by Ross and Kauzal indicating that immature *Chabertia ovina* produce diarrhoea with blood and mucus and accompanied in lambs by marked loss of condition.

R.T.L.

(b) The infective larvae of species of *Ostertagia* may be differentiated from those of *Trichostrongylus* by their total length. Gordon also points out that the egg-producing capacities of various Strongylids in sheep vary and so affect the egg count and differential larval counts. *Haemonchus contortus* may produce 100 times as many eggs per gramme of faeces as *Trichostrongylus* while *Ostertagia* is even poorer in comparison.

R.T.L.

(c) Gapeworm has only twice been recorded from Australia. McLennan describes an outbreak in white-capped African starlings imported from the London Zoological Gardens. This occurred over a year after the birds reached Australia.

R.T.L.

328—Bergcultures.

- a. PFÄLTZER, A.—“Een en ander over de aaltjesbestrijding.” VII (37), 1042-1046. [1933.]

(a) Pfältzer gives a general account of the history, importance and methods of control of the coffee nematode (*Anguillulina pratensis*).

Various methods which have been investigated for the control of the pest are described, but the author considers that starving the parasite out of the soil will give the best results. Meanwhile some improvement in attacked crops can be achieved by measures which promote root growth and by general attention to cultural methods.

M.J.T.

329—Boletín del Instituto de Clínica Quirúrgica.

- a. NIÑO, F. L.—“Consideraciones diagnósticas y parasitológicas acerca de un caso de eosinofilia apendicular.” IX (79/81), 339-345. [1933.]
 b. NIÑO, F. L.—“Miositis verminosa. (Consideraciones diagnósticas y parasitológicas). (Nota previa).” IX (79/81), 346-348. [1933.]

(a) An intense infiltration of eosinophiles in an appendix, from a case of chronic appendicitis, led Niño to postulate a parasitic origin for the observed lesions. Subsequently the patient was found to be harbouring *Strongyloides stercoralis* in large numbers.

B.G.P.

(b) On examining sections of a tumour, the size of an orange, which had been excised from a dorsal muscle in a man, Niño found transverse sections of an unknown nematode varying from 200-500 μ in diameter and lying in interstitial tissue. In places the worm showed partial calcification. Microphotographs are reproduced and an extended account of the case is promised.

B.G.P.

330—Bollettino dei Musei e Laboratori di Zoologia e Anatomia Comparata della R. Università di Genova.

- a. REMOTTI, E.—“Sulla sistematica dell'*Ascaris capsularia* Rud.” XIII (64), 1-26. [1933.]
 b. REMOTTI, E.—“Ancora sull'*Ascaris capsularia* Rud.” XIII (68), 1-15. [1933.]

(a) The larval form called *Ascaris capsularia* is commonly met with in various parts of the body of Teleosts and occasionally also in Selachians and Ganoids. Remotti has found it commonly in the abdominal cavity and

adjacent organs of *Merluccius vulgaris*. He describes and figures it in detail and considers that, while several species may be represented by the name *A. capsularia*, his own material probably belonged to *Anacanthocheilus*. Two adult males from the intestine of the same fish may have been the same species. B.G.P.

(b) Remotti here suggests that the larval forms *Ascaris capsularia* in *Merluccius vulgaris* may be normally adult in other Teleosts or in predatory Selachians, and that a smaller larval ascarid from the musculature of the [Mediterranean] sardine may be an earlier stage of the same worm. The paper is illustrated with photographs. B.G.P.

331—Bollettino di Zoologia.

- a. PALOMBI, A.—“*Cercaria pectinata* Huet e *Bacciger bacciger* (Rud.). Rapporti genetici e biologia.” IV (1), 1-11. [1933.]
- b. PALOMBI, A.—“Una parola di risposta a C. Ruth Shaw su *Cercariaeum lintoni* Miller and Northup.” IV (3), 117-119. [1933.]
- c. VIALLI, M.—“Ricerche istochimiche sui vitellogeni dei plathelmini. (Nota preventiva).” IV (4), 135-138. [1933.]
- d. SCIACCHITANO, I.—“*Gordii* di Romagna.” IV (5), 187-189. [1933.]

(a) Palombi has studied the life cycle of *Bacciger bacciger* (Rud.), an intestinal parasite of the fishes *Atherina presbyter*, *A. hepsetus* and *A. Boyeri* and has been able to demonstrate that *Cercaria pectinata* Huet is the larval form of this fluke.

The molluscs *Tapes decussatus*, *T. pullaster*, *T. philippinarum*, *T. aureus*, *Donax vittatus* and *Pholas candida* are the first intermediate hosts into which the miracidium enters to become the sporocyst. The life-history is completed within a year as molluscs were found, at Naples, to be infected with relative frequency during October to December, while the cercariae were observed in the second (crustacean) intermediate host from December to March and development was completed in the fish from April to September. The author describes the miracidium briefly and the sporocyst and cercaria in greater detail. The number of molluscs parasitized, the infection frequently being severe, varies but may exceed 50 per cent. in some localities.

J.N.O.

(b) Palombi refutes certain remarks, made by Shaw [see Helm. Abs., Vol. II, No. 71a], concerning the cercariae of *Diptherostomum brusinae* Stoss. and *Cercariaeum lintoni* Miller and Northup. He reaffirms that the two forms bear a close resemblance to one another but that they are not identical, and indeed, belong to two different adult species.

J.N.O.

(c) Histochemical reactions show that the granules of the yolk glands of platyhelminthes contain a di- or polyphenolic substance, probably an orthodiphenol.

R.H.H.

(d) Sciacchitano, in a faunistic note, records the occurrence of Gordiids in Romagna. The worms were collected in the neighbourhood of Forlì and Cæsena in the eastern portion of the province of Emilia and consisted of 27 specimens embracing four species as follows:—*Parachordodes violaceus* (Baird) from a *Pterostichus* beetle, *P. wolterstorffii* Cam., *Gordius villoti* Rosa from a stream and an undetermined *Gordius* species from a ditch. J.N.O.

332—Bulletin de l'Académie R. de Belgique. Classe des Sciences.

- a. DE WAELE, A.—“Recherches sur les migrations des cestodes.” Ser. 5, XIX, 649-660, 837-848, 1126-1135. [1933.]

(a) In these three papers De Waele sets out his observations on the resistance of cestode tissues to the digestive juices of the host and to artificial digestive fluids.

In the case of adult *Taenia saginata* he shows that the cuticle protects the worm from digestion in the small intestine, but no antiferments are involved and if the proglottids are successively treated with acid and alkali (or in the reverse order) then pancreatine will digest them. The embryophore is digested by the same double process but in the stomach, while it is still intact, it protects the onchosphere from the HCl. De Waele discusses the application of these factors in the life-history of the worm and shows that host-specificity is not involved at this stage: elimination of embryos by an unsuitable host must occur in the blood. At the same time, artificial hatching will not occur if one uses the digestive juices of pigeon, frog or snail: it is a mammalian group reaction. Nor will juices of the above, or of mammals, effect the hatching of *Moniezia benedeni* eggs. In a similar way the scolex and neck of *Cysticercus pisiformis* are not digested only because their cuticle has been protected from HCl in the stomach by the cyst and its complex invaginations: scolices previously evaginated in bile and then taken through stomach and intestinal juices are completely digested. B.G.P.

333—Bulletin de l'Académie Vétérinaire de France.

- a. EVANNO.—“Sur la sparganose oculaire.” VI, 355-356. [1933.]
 b. DESCATZEAUX & MOREL.—“Relations entre les habronémoses cutanées et gastriques du cheval.” VI, 364-367. [1933.]

(a) Prof. Henry communicates the substance of a thesis by Evanno entitled “Contribution à l'étude de *Sparganum mansoni*, de *Dibothriocephalus mansoni* et de la sparganose oculaire.” At Hué, Evanno found 40 per cent. of frogs infested with *S. mansoni*. He has experimentally verified the development of this stage to the adult worm in the dog, and has succeeded in infesting monkeys with ocular sparganosis by direct application of spargana to the eye. B.G.P.

(b) Using their biological method of diagnosis [see Helm. Abs., Vol. II, No. 239a], Descatzeaux and Morel have found *Habronema muscae* in each of 12 horses and *H. megastomum* also in 7 of them. Summer sores were present in 6 of the 7, and the authors suggest that *H. megastomum* is specifically associated with this condition as also with the production of adenomatous tumours in the stomach and with a nodular bronchitis, whereas *H. muscae* and *H. microstomum* are far less pathogenic. Control must consist largely in a campaign against flies, although manure disposal is also important. No serviceable internal anthelmintic is yet available, but novarsenobenzol is valuable for application to the sores. B.G.P.

334—Bulletin. Department of Game and Fisheries. Ontario.

- a. LAW, R. G.—“Hookworm infection in foxes.” No. 5, 39 pp. [1933.]

(a) Law finds that *Uncinaria* is a province-wide pest of foxes and in this bulletin he brings together a mass of information—mostly original—on these hookworms. Direct centrifugal flotation is the best method for finding eggs in faeces. Temperatures just under 0°C. prolonged over five days destroy larvae in soil but they are more resistant in water. Ninety-two per cent. of larvae in moderate shade, between June and the first week in October, died in three weeks but a very few survived for 129 days. The eggs hatch between 30°C. and 37°C. but most larvae die within 24 hours. The optimum appears to lie between 20°C. and 25°C., and larvae live in water for at least seven months. Development ceases at freezing point and larvae are killed on exposure to this temperature for five days. Sodium chloride is lethal to them in soil.

Infection may be by mouth or by skin and maturity is reached in fourteen days. The adult worms do little damage to the mucosa and feed mainly on cellular debris. Anaemia is the prominent symptom. Tetrachlorethylene has an efficiency of 81.6 per cent., but four doses may be necessary to expell all the worms. The infection tends to disappear from foxes when they are kept on board floors for two years and pups born on these are either free or very lightly infected.

T.W.M.C.

335—Bulletin de l'Institut Océanographique de Monaco.

- a. TIMON-DAVID, J.—“ Sur une nouvelle espèce de *Renicola* trématode parasite du rein des Laridés.” No. 616, 1-16. [1933.]

(a) Timon-David describes *Renicola lari* n. sp. encysted in the kidneys of *Larus argentatus* at Marseilles. He reviews the other 4 species of the genus and gives a key, describes the location of the flukes—always in pairs in greatly dilated Bellini's tubes—and suggests that infection may be via the intestinal canal, cloaca and ureters.

B.G.P.

336—Bulletins et Mémoires de la Société Nationale de Chirurgie.

- a. BONNAL, G., JOYEUX, C. & BOSH, P.—“ Un cas de cénurose humaine dû à *Multiceps serialis* (Gervais).” LIX (26), 1147-1149. [1933.]

(a) This is substantially the same paper, somewhat abbreviated, as that written by Bonnal, Joyeux and Bosh and published in the *Bull. Soc. Path. exot.*, XXVI (8), 1060-1071 [see Helm. Abs., Vol. II, No. 239b].

J.N.O.

337—Bulletin Mensuel. Office Internationale des Épizooties.

- a. SKRIABINE, K. I. & SCHULZ, R. E.—“ La prophylaxie de la fasciolose et des strongyliosés des ovins et du gros bétail.” VII (1), 195-236. [1933.]

(a) Skrijabin and Schulz present a report on the control measures adopted in the U.S.S.R. against the principal helminths of sheep, cattle and horses. In the case of sheep and cattle these are the trichostrongylids, lungworms and liver fluke.

One of the chief problems in prophylaxis is the treatment of dung before it is used on the land. They describe two methods of storage, involving respectively anaerobic and aerobic fermentation, whereby eggs and larvae are killed

by the heat generated. These work well with horse and sheep dung but cattle dung has to be mixed with horse dung, and the process is prolonged to 2 to 3 months. The hygiene of watering stock, the rotation of pastures and their treatment with sufficient lime to raise the pH. to 10, so as to control molluscs, are also dealt with.

Another prophylactic measure of great importance is the periodic large-scale treatment of stock with anthelmintics, in autumn and spring. Copper sulphate is preferred for *Haemonchus*, and has some effect also on *Nematodirus*, but the other trichostrongylids are difficult to reach. *Dictyocaulus* is treated by intratracheal injections of iodine with the animal lying on its back in a special cradle. The tincture mixed with glycerine has given good results, but recent work with Lugol's solution promises even better. Investigations on treatment of *Synthetocaulus* are in progress: *Muellerius* is not met with. Carbon tetrachloride is used against *Fasciola* in both sheep and cattle, and is best administered to the latter by syringe direct into the rumen: gestation is not a contra-indication.

The various control measures are elaborated and tested by research at the Institute of Helminthology and its chain of subsidiary institutes, and are then decreed by the Commissariat of Agriculture and put into effect on the numerous Collective Farms. In this way treatment can occur simultaneously over a wide area and measures can be tested on a vast scale. At the same time, the intelligent co-operation of all the workers on the Collective Farms is secured by a variety of educational methods. B.G.P.

338—Bulletin of the Museum of Comparative Zoology.

- a. SANDGROUND, J. H.—“Reports on the scientific results of an expedition to the Southwestern Highlands of Tanganyika Territory. VI. Parasitic nematodes from East Africa and Southern Rhodesia.” LXXV (6), 263-293. [1933.]

(a) Sandground lists the parasitic nematodes in a collection from Tanganyika, Southern Rhodesia and Mozambique and describes nine new species.

Haemonchus lawrenci n. sp. from the blue duiker, *Cephalophus monticola*; *Syphacia paraxeri* n. sp. from *Paraxerus palliatus*; *Heterakis silindae* n. sp. from the red-necked francolin *Pternistis afer swynnertoni*; *Strongyluris paradoxus* n. sp. and *Contracaecum hagedashiae* n. sp. from the glossy Ibis, *Hagedashia hagedashia nilotica*; *Subulura callosa* n. sp. from the elephant shrew *Petrodromus tetradactylus*; *Arduenna africana* n. sp. from the three hosts *Mastomys (Epimys) microdon victoriae*, *Rhabdomys pumilio diminutus* and *Boaedon lineatus* (a table sets out the differences between this and the three other species of *Arduenna*); *Thubunea grayiacola* n. sp. from *Grayia tholloni* and *Bitis arietans*; and *T. agamae* n. sp. from *Agama hispida distanti*. The author notes the occurrence of *Necator americanus* in the baboon for the first time. R.T.L.

339—Bulletin of the North Carolina Agricultural Experiment Station.

- a. HOSTETTLER, E. H. & FOSTER, J. E.—“Sanitation as a method of controlling stomach worms in lambs.” No. 287, 16 pp. [1933.]

(a) Hostetler and Foster give the results of an experiment covering a period of 4 years, to test the value of temporary pastures in controlling stomach worms in sheep.

The authors find that lambs grazed on temporary pastures and without drenching show a more rapid gain in weight than a similar group of lambs which were regularly drenched but grazed on a contaminated permanent pasture. Grazing on temporary pastures is therefore a valuable method of keeping not only stomach worms but other intestinal parasites under control. It was also found that periodic drenching without preliminary fasting gave better weight gains although a rather heavier worm infestation was found in the unfasted group at autopsy.

D.O.M.

340—Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord.

- a. DOLLFUS, R. P. & MONOD, T.—“*Hoplodontophorus flagellum* (Ehrenb.) chez *Procapra antineae* Bégouen et H. Heim de Balsac au Hoggar.” xxiv, 327-341. [1933.]

(a) Dollfus and Monod found 5 males and many 4th stage larval females of *Hoplodontophorus flagellum* in the rectum of a preserved specimen of *Procapra antineae*. They discuss the anatomy of the head region, describe in detail the structure of the male caudal appendages, particularly the ventral sucker and give an account of the ensheathed 4th stage females. The paper is illustrated with one photograph and 18 text figures including a map showing the geographical distribution of host and parasite. There is a table showing the parasites of *Procapra* species and a bibliography of papers thereon. T.G.

341—Bulletin de la Société de Pathologie Exotique.

- a. HELMY, M.—“Rôle du réservoir d'Assouan dans la dissémination des *Bulinus* en Egypte.” xxvi (10), 1265-1267. [1933.]

(a) Helmy has found that species of *Bulinus* are numerous in certain small creeks on the east side of the Assouan reservoir, where they are associated with the plant “shara.” They are also numerous along the banks of the Nile south of the reservoir where, as in Egypt, they are associated with *Potamogeton crispus*. Thus the bilharzial carriers of both Egypt and the Sudan have a common origin in the upper reaches of the Nile, and the destruction of snails in the terminal irrigation canals would not be of permanent value.

B.G.P.

342—Bulletin de la Société des Sciences Naturelles du Maroc.

- a. DORIER, A.—“Sur une petite collection de Gordiacés du Maroc rassemblée par Robert-Ph. Dollfus.” xiii (1/3), 109-111. [1933.]

(a) Dorier has examined a small collection of Gordiids assembled by R.Ph. Dollfus from Morocco. The following species are represented:—*Gordius aquaticus* Duj., *G. Pioltii* Cam., *G. obesus* Cam. and an incomplete undetermined *Gordius* species. The author considers the first two forms very much alike, liable to be confused and therefore worthy of more detailed study. The localities of collection are mentioned.

J.N.O.

343—Bulletin de la Société Zoologique de France.

- a. SKRIABINE, K. I.—“Au sujet d'un nouveau remaniement de la systématique de la famille des Anoplocephalidae Chodak., 1902.” LVIII (2), 84-86. [1933.]
- b. SKRIABINE, K. I.—“Sur la position systématique des nématodes du genre *Oslerus* Hall, 1921.” LVIII (2), 87-89. [1933.]

(a) Skriabine has considered the systematics of the family Anoplocephalidae.

He uses the presence or absence of the parauterine organ as a basis for his first division. It is absent in the Anoplocephalinae and Linstowinae, which are differentiated on the nature of the uterus. The parauterine organ is present in the Thysanosomatinae and the Stylesiinae, which are themselves differentiated on the disposition of the testes.

P.A.C.

(b) Skriabine considers the Filaroidinae, n. subfam. with special reference to the genus *Oslerus*.

He is of the opinion that *Oslerus* should be considered as a sub-genus of *Filaroides* as the characters that have been used to differentiate them in the past are quantitative, not qualitative. He gives a table which suggests a new method of classifying the Filaroidinae.

P.A.C.

344—Capita Zoologica.

- a. FUCHS, G.—“Einige Nematoden bei *Scolytus scolytus* F.” IV (1), 1-45. [1933.]
- b. ALLGÉN, C.—“Freilebende Nematoden aus dem Trondhjemsfjord.” IV (2), 1-162. [1933.]

(a) Fuchs deals with a nematode fauna associated with the Large Elm Bark Beetle, *Scolytus scolytus* F. Ten nematode species were found by the author in material, sent from Holland, consisting of pieces of elm bark, frass and crushed adult and larval beetles.

Detailed descriptions, supplemented by ponderous and intricate formulae, are given for the nematodes which are:—Parasitic forms: *Parasitylenchus scolyti* n. sp. (previously described in 1930 by Oldham) from free-living males and *P. secundus* n. sp. from both sexes of the free-living generation. Non-parasitic forms: *Rhabditolaimus schuurmansi* n. sp., from beneath the elytra and on larval beetles, *Rhabditis franseni* n. sp., *R. lacustris* and an undetermined *Rhabditis* species, *Diplogaster paulyi* n. sp., *D. striatulus* n. sp., *Cephalobus persegis* (Bastian) var. *setifer* n. var. and *Aphelenchus parietinus* all from the beetles' frass.

J.N.O.

(b) In this large faunistic paper Allgén deals with the free-living marine nematodes which he collected in the summer of 1928 at various stations on Trondhjemsfjord, Norway.

The 2,560 specimens collected were found to belong to 76 genera and 177 species of which 3 genera and 59 species are new to science whilst, in addition, there are 5 new varieties. In the introduction the author discusses the collection and preservation of the worms, specifies the collecting stations (with map) and deals with the systematics of the nematodes found. The

main body of the work is occupied with the descriptions of the various species collected for which measurements and proportions are given. This matter is set out under the following family headings:—Enoplidae, Chromadoridae, Chaetosomatidae, Monhysteridae and Rhabditidae. The 19 plates are made up of 83 clear line drawings and a full list of references is given. T.G.

345—Časopis Lékařů Českých.

- a. KLOBOUK, A.—“O echinokokkose zvířat.” LXXII (46/47), 1435-1458.
- b. ŠIMON, J. & PODLAHA, J.—“O echinokoku jater.” LXXII (46/47), 1596-1611.

(a) Klobouk gives a general account of hydatid in its various forms in domesticated animals, based on an extensive review of the literature. B.G.P.

(b) Šimon and Podlaha review the Czecho-Slovakian literature on liver hydatid published during the past 20 years. At the Brno abattoir it has been found in 1·8 per cent. of pigs and 2·0 per cent. of cows during 1925-1932, but in cows it is usually pulmonary. They also give a clinical case report and discuss the technique of operation. B.G.P.

346—Ceylon Journal of Science, Section B. Zoology & Geology.

- a. FERNANDO, W.—“Contributions to Ceylon helminthology. 2. *Phaneropsolus lakdivensis* sp. nov., a trematode from the Ceylon Slender Loris (*Loris tardigradus*).” XVII (3), 149-154. [1933.]

(a) *Phaneropsolus lakdivensis* n. sp. from *Loris tardigradus*, Ceylon, is a very small distome closely resembling *Phaneropsolus orbicularis*, but possessing a distinctly Y-shaped excretory vesicle. The small intestine of the loris was heavily infested with the worms. E.M.S.

347—China Journal.

- a. ROBERTSON, R. G.—“Schistosomiasis in the Shanghai region.” XIX (1), 28-37. [1933.]

(a) In view of the outbreak of schistosomiasis among foreign visitors to Henli (Tsin-yang-kong), a favourite boating resort a few miles from Shanghai, Robertson gives an account of the parasite and its life history and pathology and points out that the exceptional flood conditions in that area during the summer of 1931 caused an abnormal outflow of water from the rice fields into the ditches where the molluscan carrier abounds. In this way cercariae were carried into Clear Water Harbour which for many years has been regarded as free from infection. A useful map is given of the low lying country of Kiangsu and Chekiang showing the endemic centres of schistosomiasis in the Lower Yangtze and Hai Hu Lake region. R.T.L.

348—Chinese Medical Journal.

- a. HOEPPLI, R.—“Parasites and tumor growth.” XLVII (11/12), 1075-1111. [1933.]
- b. HOEPPLI, R.—“Histological changes in the liver of sixty-six Chinese infected with *Clonorchis sinensis*.” LXVII (11/12), 1125-1141. [1933.]
- c. HOEPPLI, R. & FENG, L. C.—“Myeloid changes in the spleen of experimental animals due to infection with *Cysticercus fasciolaris* and to emulsions prepared from tapeworms.” XLVII (11/12), 1146-1153. [1933.]

- d. CHUNG, H. L.—“Certain surgical complications of *Schistosomiasis japonica*.” XLVII (11/12), 1171-1180. [1933.]
- e. CH'IN, K. Y.—“Nodules or tumors in subcutaneous and other tissues due to *Cysticercus cellulosae*.” XLVII (11/12), 1181-1190. [1933.]
- f. HOEPLI, R.—“Curiosities in human parasitology.” XLVII (11/12), 1200-1213. [1933.]
- g. FENG, L. C.—“A comparative study of the anatomy of *Microfilaria malayi* Brug, 1927 and *Microfilaria bancrofti* Cobbold, 1877.” XLVII (11/12), 1214-1246. [1933.]
- h. HSÜ, H. F.—“Study on the oesophageal glands of parasitic Nematoda superfamily Ascaroidea.” XLVII (11/12), 1247-1288. [1933.]
- i. HSÜ, H. F.—“Remarks on some morphological characters of parasitic nematodes of man and dog together with description of a new *Goezia* species from Yangtze beaked sturgeon.” XLVII (11/12), 1289-1297. [1933.]
- j. LI, H. C.—“Report on a collection of parasitic nematodes mainly from North China. Pt. III. Oxyuroidea.” XLVII (11/12), 1307-1325. [1933.]
- k. HSÜ, H. F. & WATT, J. Y. C.—“*Dracunculus medinensis* infection in two dogs in Peiping. Experimental infection of cyclops.” XLVII (11/12), 1326-1330. [1933.]
- l. LI, H. C.—“Feeding experiments on representatives of Ascaroidea and Oxyuroidea.” XLVII (11/12), 1336-1342. [1933.]
- m. LI, H. C.—“On the mouth-spear of *Trichocephalus trichiurus* and of a *Trichocephalus* sp. from a monkey, *Macacus rhesus*.” XLVII (11/12), 1343-1346. [1933.]
- n. HU, S. M. K. & YEN, C. H.—“Studies on the susceptibility of *Culex pipiens* Linnaeus var. *pallens* Coquillett to experimental infection with *Wuchereria bancrofti* Cobbold in Shanghai area.” XLVII (11/12), 1359-1366. [1933.]
- o. HU, S. M. K. & CHANG, T. L.—“Observations on natural infection of *Culex pipiens* Linnaeus var. *pallens* Coquillett with *Wuchereria bancrofti* Cobbold in Woosung district, Shanghai, China.” XLVII (11/12), 1367-1372. [1933.]
- p. LEE, C. U. & CHUNG, H. L.—“Treatment of *Schistosomiasis japonica* with foudadin in man.” XLVII (11/12), 1411-1420. [1933.]
- q. WANG, K. C.—“The treatment of ascariasis with hexylresorcinol.” XLVII (11/12), 1433-1437. [1933.]

(a) Heoppli reviews the recorded cases in which parasites have apparently played an etiological rôle in the development of tumours and appends a bibliography of the more important works on the subject. R.T.L.

(b) From an examination of 66 Chinese, under 40 years of age, who had died suddenly and in whom *Clonorchis sinensis* was accidentally found at autopsy, Hoepli concludes that there are many cases of moderate infection in which clinical symptoms are light or non-existent yet have already considerable histological changes in the liver. R.T.L.

(c) Definite myeloid changes in the spleen were produced by Hoepli and Feng when rats and mice were infected experimentally with *Cysticercus fasciolaris* and when injections were made with emulsions of *Cysticercus fasciolaris*, *Taenia taeniaeformis* and *T. marginata*. R.T.L.

(d) Four cases are discussed by Chung in which appendicitis, tuberculosis of the intestines, thrombosis of the portal, mesenteric and splenic veins were complicated surgically by a *Schistosoma japonicum* infection. R.T.L.

(e) In the thirteen instances of *Cysticercus cellulosae* in man seen by Ch'in in Peking only two were diagnosed correctly, three were “multiple neurofibroma” and once each the diagnosis was “neurofibroma of the median nerve, sebaceous cyst, fibroma, lipoma ganglion of the biceps tendon, tumour of muscle, brain tumour,” and an unknown condition, probably a disorder of

the reticular system. "Jacksonian epilepsy" occurred thrice and "idiopathic epilepsy" twice. The author describes the histopathology and symptomatology of the infection. He inclines to the view that in many cases the consumption of insufficiently boiled vegetables is the source of the infection. R.T.L.

(f) Hoepli summarizes some of the strange and erroneous theories and reports in early publications, recounts some of the more remarkable of lesser widely known facts and refers to other curious facts which can and cannot be explained according to our present knowledge; among the latter he properly cites microfilarial periodicity. R.T.L.

(g) In great detail Feng describes and illustrates the differences between *Microfilaria malayi* and *M. bancrofti*. The former is found very commonly in Huchow of Chekiang Province, South China. *M. malayi* is more like to *M. loa* than to *M. bancrofti*. R.T.L.

(h) Hsü gives descriptions of the oesophageal glands in nineteen species of Ascaroidea. These glands are very important in the modern classification of this superfamily. The genus *Toxocara* should be transferred from Ascarinae to Anisakinae. The genus *Ascaridia* is more nearly related to the *Heterakidae*. The tissue changes caused by these worms are correlated with the development of the oesophageal glands. R.T.L.

(i) In this paper Hsü gives some new morphological observations on *Ternidens deminutus* and *Enterobius vermicularis* from man and on *Spirocerca sanguinolenta* and *Thelazia californiensis* from the dog and describes *Goezia nankingensis* n. sp. from a Yangtze sturgeon. In *T. deminutus* a gubernaculum is described. The spicules measure 1.26 to 1.31 mm. In *E. vermicularis* there are actually six pairs of preanal papillae as originally given by Leuckart. Hsü confirms Baylis' account of the cephalic papillae. The differential diagnosis of *T. californiensis* from *T. callipaeda* on the number and arrangement of the caudal papillae is confirmed. *Goezia nankingensis* n. sp. has a shorter caecum than *G. gavialis* which it closely resembles. R.T.L.

(j) In this report Li describes *Heterakis lingnanensis* n. sp. from *Gallus domesticus*, *Citellina levini* n. sp. from *Sciurus vulgaris* and *Africana howardi* n. sp. from *Bufo* spp. and eight known species. R.T.L.

(k) Guinea-worm is reported in two dogs born in Peking (Peiping) where four species of cyclops occur which can be infected experimentally, viz., *Cyclops leuckarti*, *C. magnus*, *C. serratulus* and *C. ternis*. R.T.L.

(l) Using starch granules to study the feeding habits of various intestinal worms, Li concludes that *Ascaris lumbricoides*, *Toxocara canis*, *Toxascaris leonina* and *Ascaridia lineata* all feed on the intestinal contents of their hosts. R.T.L.

(m) Li describes and illustrates by photography a minute spear in the mouth of adult *Trichuris* specimens. He emphasises its theoretical significance as indicating a possible relation to the Tylenchinae. R.T.L.

(n) The susceptibility of *Culex pipiens* to infection by *Filaria bancrofti* first recorded by Yamada (1927) is confirmed by Hu and Yen. From 48 *Culex pipiens* var. *pallens*, experimentally infected, an average of 3.9 infective larvae were recorded. R.T.L.

(o) Seventeen per cent. of the *Culex pipiens* var. *pallens* collected from the houses of filarial patients in Woosung during June and July showed an infection with *Filaria bancrofti*. Hu and Chang show that *Filaria bancrofti* is able to undergo complete development in the mosquito under natural conditions in the neighbourhood of Shanghai.

R.T.L.

(p) In three out of four cases of *Schistosoma japonicum* infection treated with Fouadin clinical improvement followed with disappearance of ova but after 2 to 4 months all relapsed. The fourth case derived no apparent benefit. While Fouadin is on the whole less toxic than tartar emetic, in one case its use had to be abandoned.

R.T.L.

(q) While hexylresorcinol is certainly safer and more easily administered than santonin or chenopodium its efficacy in Wang's experience is not greater, cures occurring in 78 per cent. of the cases treated.

R.T.L.

349—Circular. California Agricultural Experiment Station.

a. TYLER, J.—“The root-knot nematode.” No. 330, 34 pp. [1933.]

(a) Tyler gives a general account of the root-knot nematode and methods which may be used for its control.

The appearance of infected plants and the life cycle and methods of spread of the eelworm are described. Lists of plants are given under various headings, including (i) the most important hosts of the nematode; (ii) plants reported resistant to the nematode; (iii) plants reported as giving a profitable crop even when infested; (iv) host plants which are not reported as seriously injured. All stages of the life cycle are killed at 0°F. A temperature of 135°F. kills all stages instantly, 120°F. kills in 10 minutes and 110°F. in 2 hours. Chemical control is not recommended but carbon disulphide, chloropicrin and cyanide have given good results. Rotation with resistant crops combined with control of weeds allows one susceptible crop to be grown every 2 or 3 years. Control by flooding is more rapid than by fallow and complete desiccation is also effective in cleaning soil.

M.J.T.

350—Circular. United States Department of Agriculture.

a. CHRISTIE, J. R. & STEVENS, N. E.—“Strawberry dwarf.” No. 297, 8 pp. [1933.]

(a) Christie and Stevens describe the occurrence and symptoms of “dwarf” in the United States and discuss the methods which may be taken for its control.

“Dwarf” is stated to be essentially a bud disease caused by the nematode *Aphelenchoides fragariae*. Its wide distribution is caused by the sale and planting of infected stock. Where systematic “roguing” is carried out losses caused by the disease are reduced and the spread of infection is checked. A detailed account of the seasonal variations in symptoms is given. As the most practical measure of controlling the disease, systematic inspection of nursery stock and the certification of disease-free plantings is advocated.

M.J.T.

351—Clinica Veterinaria.

- a. ASDRUBALI, M.—“Ciste da echinococco sulla dura, nella sella turcica, in un bue.” LVI (12), 926-931. [1933.]

(a) Asdrubali, after noting that although 120 cases of echinococcus cysts have been found in human brains only 18 have been recorded from the brains of animals—five being in bovines, puts on record a new case from the sella turcica of an ox in Perugia. For a month before being destroyed, the animal showed cerebral symptoms, progressive weakness, and lack of appetite. On autopsy, a hydatid cyst, about the size of a tangerine, was found in the middle cranial fossa, conforming in shape to it and easily detachable. The bone at the bottom of the fossa showed retrograde changes with foci of new growths. T.W.M.C.

352—Comptes Rendus Mensuels des Séances de l'Académie Polonaise des Sciences et des Lettres. (Classe de Sciences Mathématiques et Naturelles.)

- a. MARKOWSKI, S.—“Contribution à la connaissance du développement de la larve *Tetrathyridium variable* (Diesing 1850).” No. 5, 5-6. [1933.]
 b. MICHAJŁOW, W.—“Sur les stades larvaires de *Triaenophorus nodulosus* (Pall.). Le procercoïde.” No. 6, p. 8. [1933.]

(a) The encysted and free larvae of *Tetrathyridium* are analogous to cysticerous and plerocercous forms. By feeding larval *T. variable* from *Corvus frugilegus* to a dog adult *Mesocestoides litteratus* were obtained but attempts to infect *Corvus* with eggs were negative, suggesting an intermediary among the *Coprophaga*. R.T.L.

(b) Michajłow has continued his study of the larval stages of *Triaenophorus nodulosus* [see Helm. Abs., Vol. II, No. 139d] and here describes the formation of the proceroid. The complicated external and internal structures are also described and the author refers to a curious anomaly which consisted in the presence of 2 cercomers, each provided with 4 hooks. J.N.O.

353—Comptes Rendus des Séances de la Société de Biologie.

- a. POPESCO, F.—“L'action thérapeutique de la fouadine sur la filariose canine.” CXIV (29), 219-220. [1933.]
 b. POPESCO, F. & MUNTU, N.—“L'éosinophilie et l'image d'Arneth dans la filariose du chien.” CXIV (39), 1343-1345. [1933.]

(a) Popesco has used Fouadin in the treatment of dogs suffering from filariasis, which is very common in Roumania. The seven to eight injections were given intravenously, the first three at 24 hour, the remainder at 48 hour intervals. 2 to 5 cc. was given at a dose. The first injections are tolerated well but after the fourth or the fifth, the animal appears upset and the microfilariae begin to disappear from the blood. He had excellent results with all 14 cases under treatment. T.W.M.C.

(b) Popesco and Muntiu examined 82 dogs in an area where filariasis is common; 45 showed microfilariae in the blood. In these animals the eosinophilia was on the average 10-95 per cent., although the figure may rise to 29 per cent. In dogs showing no microfilariae, in the same region, it was

9.78 per cent. while in such animals as were under a year old, it was 11 per cent. They believe the latter figure is due to the fact that the dogs were infected but microfilariae do not appear until after 9 months. In 13 infected dogs, the Arneth count was moved to the right.

T.W.M.C.

354—Compte Rendu des Séances de la Société de Physique et d'Histoire Naturelle de Genève.

- a. FRIEDHEIM, E. A. H., SUSZ, B. & BAER, J. G.—“ Sur l'énergie d'activation et le coefficient de température d'une réaction biologique. (La respiration des larves de *Diphyllobothrium latum*). ” L (1), 177-182. [1933.]

(a) Manometric experiments on the oxygen uptake of *Dibothriocephalus* larvae at various temperatures, show that this increases to a maximum at 37°C. and then falls rapidly. The results, examined from a physico-chemical standpoint, lead to the conclusion that the reaction of respiration is a heterogeneous molecular one.

R.H.H.

355—Contributions to Canadian Biology and Fisheries.

- a. KUITUNEN-EKBAUM, E.—“ *Philonema oncorhynchi* nov. gen. et spec.” VIII (4), (Series A, General, No. 31), 71-75. [1933.]
- b. WARDLE, R. A.—“ The Cestoda of Canadian fishes. III. Additions to the Pacific coastal fauna.” VIII (5), (Series A, General, No. 32), 79-87. [1933.]
- c. KUITUNEN-EKBAUM, E.—“ A study of the cestode genus *Eubothrium* of Nybelin in Canadian fishes.” VIII (6), (Series A, General, No. 33), 89-98. [1933.]
- d. KUITUNEN-EKBAUM, E.—“ *Citharichthys stigmaeus* as a possible intermediate host of *Gilquinia squali* (Fabricius). ” VIII (7), (Series A, General, No. 34), 99-100. [1933.]
- e. KUITUNEN-EKBAUM, E.—“ A case of dracontiasis in Pacific coastal fishes.” VIII (13), (Series A, General, No. 36), 163-168. [1933.]
- f. SMEDLEY, E. M.—“ Nematode parasites from Canadian marine and fresh-water fishes.” VIII (14), (Series A, General, No. 37), 171-179. [1933.]

(a) Kuitunen-Ekbaum finds that about 95 per cent. of the Sockeye salmon (*O. nerka*) from English Bay, B.C., are parasitized with a dracunculoid nematode *Philonema oncorhynchi* n. g., n. sp. It differs from the genus *Philometra* in the pointed posterior end of the female, the pointed, spirally coiled end of the male, the absence of accessory piece and the subterminal position of the anus in the male. The adults live in the body cavity, and the uterus of the female bursts when placed in sea water but the larvae die in two days.

T.W.M.C.

(b) Wardle adds to his list published last year from the Canadian Pacific coast, five adult and three larval cestodes not previously reported from this region.

T.W.M.C.

(c) Kuitunen-Ekbaum considers that three species of *Eubothrium* occurring in Canadian salmonoid fish agree in their major characteristics with the European species, *nigosum*, *crassum* and *salvelini*, while the fourth species (*E. oncorhynchi*), is distinct.

T.W.M.C.

(d) Kuitunen-Ekbaum found two specimens of flounder (*Citharichthys stigmaeus*) heavily infected with tetra-rhynchid larvae. Five of these were fed to a dog fish—*Squalus sucklii*, which was not fed subsequently and died 18 days later. It was found to contain five immature specimens of *Gilquinia*

squali and the author believes these may have developed from the ingested larvae. T.W.M.C.

(e) Kuitunen-Ekbaum describes a new species of dracunculoid nematode—*Philometra americana*—from the fins, head region or lateral body walls of several shallow-water Pacific fishes. The female reaches maturity in summer and leaves the host; the larvae escape by rupture of the body wall, the rupture taking place most frequently at the anterior end or middle of the body. Copepods are suspected as the intermediate hosts. T.W.M.C.

(f) Smedley has examined a number of fish in Canada for the presence of helminths and finds the following species:—*Philonema oncorhynchi* from the connective tissue of *Oncorhynchus nerka* (B.C.); *Kaphidascaris canadensis* n. sp. from *Esox lucius* (Western Canada); *Cucullanus elongatus* n. sp. from *Ophiodon elongatus* (Pacific coast); *Bulbodacnitis occidentalis* n. sp. from *Salmo kamloops* (B.C.); and *Cystidicola stigmatura* from the swim-bladder of *Coregonus clupeaformis*. T.W.M.C.

356—Cornell Veterinarian.

- a. JAY, R.—“The campaign against liver flukes in California and the results.”
XXIII (3), 272-279. [1933.]

(a) In some of the valleys of the Sierras of California the sheep industry has been wiped out by liver fluke disease. In 1928 about 300,000 doses of carbon tetrachloride in 1 cc. doses were administered. No untoward results followed save when the pastures became sparse and the sheep had been put on cultivated crops or on hand feeding. The intermediate host proved to be *Galba bulimoides*. Stacks of copper sulphate crystals were placed in the water at the heads of the streams and these were dammed at intervals to raise the water to cover the snail infested banks. Pools were broadcasted with powdered copper sulphate. Usually one application was enough for the season. Marshes were dusted from airplanes. The cost per acre including labour varied from 2 to 15.50 dollars. 3 to 6 lb. per acre appeared to be sufficient. The results are strikingly illustrated by the fact that where 85 to 90 per cent. of the lambs were previously sold as feeders, 89 to 90 per cent. were afterwards sold as fat lambs. In dealing with cattle the campaign was directed solely against the mollusc. R.T.L.

357—Crónica Médico-Quirúrgica de la Habana.

- a. KOURÍ, P. & BASNUEVO, J. G.—“Algunos métodos de enriquecimiento de huevos de vermes en las heces fecales.” LIX (4), 181-186. [1933.]

(a) Kourí and Basnuevo describe the egg-concentration techniques used in their laboratory, viz., those of Telemann, Willis and Sheather. B.G.P.

358—Dermatologische Wochenschrift.

- a. FRÓES, H. P.—“Über die Ätiologie der Dermatitis linearis serpiginosa (Hautmaulwurf) in Brasilien.” xcvi (19), 662-663. [1933.]

(a) Fróes considers that the creeping eruption which afflicts man in Brazil, and to which he has given the name “dermatitis linearis serpiginosa,” is due to the larva of *Ancylostoma brasiliense*. The larvae migrate within the epidermis, whereas *Gastrophilus* migrates between epidermis and cutis, and *Hypoderma* subcutaneously. B.G.P.

359—Dermatologische Zeitschrift.

- a. MUSGER, A.—“Über Hauterscheinungen bei Trichinose.” LXVIII (1/2), 34-39. [1933.]

(a) Musger describes a case of trichinosis in a 34 year old patient in which skin reactions were prominent and unusual. An intense urticaria appeared as early as the 4th day after infection—that is, in the first stage of the disease. This was followed by oedema of the eyelids on the 8th day and general oedema over the affected muscles on the 9th day. P.A.C.

360—Deutsche Landwirtschaftliche Presse.

- a. LÜHRS.—“Neuzeitliche Bekämpfung der Leberegel- und Lungenwurmseuche.” LX (11), 131. [1933.]
 b. MEHL, S.—“Zur Bekämpfung der Leberegelseuche.” LX (22), 284. [1933.]
 c. LENTZ, W.—“Spulwurmerkrankung. Vorbeuge und Bekämpfung bei Schweinen.” LX (30), 379-380. [1933.]
 d. ANON.—“Die Ausbreitung der Leberegelseuche. Ein Mahnwort zur Entenjagd.” LX (34), 434. [1933.]
 e. EHRLICH.—“Lungenwurmseuche (Lungenwurmhusten) der Rinder.” LX (46), 585-586. [1933.]

(a) Lührs briefly outlines the life history of the liver fluke and suggests controlling it both by treating infected animals with anthelmintics and by treating pastures with calcium cyanamide and ditches with copper sulphate or sea-water. These measures also control lung-worm, and are in use on a practical scale in Oldenburg. B.G.P.

(b) Mehl considers that the control measures suggested for liver fluke by Lührs (see above) are applicable only under the conditions prevailing in Oldenburg. Even there the good results are probably due to the anthelmintic treatment and a spell of fine weather. The use of calcium cyanamide is purely theoretical, since Lührs has not been able even to find the liver fluke snail. The best results are obtained with herds of ducks, which eat the snails, and with copper sulphate solutions. B.G.P.

(c) Lentz suggests control measures suitable against ascaris in pigs. The diet should contain adequate amounts of both vitamin A and calcium. Sows should be well washed before farrowing, and later should be moved with their litters to clean pastures where the young pigs should remain until 4 months old. Styes should be thoroughly cleaned with 5 per cent. carbolic acid, especially after a worm cure. B.G.P.

(d) It is pointed out that sheep in Germany are decreasing in numbers, partly as a result of increased liver fluke infection. This, in turn, appears to be associated with a reduction in the wild duck population. It is suggested that, every few years, the close season for wild ducks should be extended for a whole year. B.G.P.

(e) Ehrlich summarizes present information regarding lung-worm disease in cattle. He points out that although *Dictyocaulus* differs from the other lungworms, *Synthetocaulus* (in sheep) and *Metastrongylus* (in pigs), in not requiring an intermediate host, yet the larvae are not immediately infective; they mature in the open for at least 6 days. He advises keeping calves away from pastures used by older, infected stock, and warns against morning dew and infected drinking water. Wet pastures should be drained

and plentifully fertilized with calcium cyanamide. Stable dung should be stacked for at least 3 weeks before use on pastures. As treatment is unsatisfactory, efforts should be concentrated on prophylaxis. B.G.P.

361—Deutsche Medizinische Wochenschrift.

- a. WIGAND, R. & STEINER, F.—“Weitere Untersuchungen über den Wurmbefall des Menschen am Kurischen Haff.” LIX (29), 1119-1121. [1933.]

(a) Wigand and Steiner here give data on the incidence of helminths in 664 persons from four centres in the Kurisches Haff district. The commonest helminths in order of frequency were trichuris, ascaris and *Dibothriocephalus latus*, and at Schaaksvitte a focus of *Opisthorchis felineus* infection was found. The age-distribution of each parasite for each locality is presented graphically. B.G.P.

362—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R.—“Zum Wirt-Parasitverhältnis des Saugwurmes *Echinoparyphium paraulum* in der Taube.” XLI (49), 772-775. [1933.]

(a) Wetzel describes the infestation of pigeons, on the island of Sylt, with *Echinoparyphium paraulum*, an echinostomid fluke which normally parasitizes water-fowl. The flukes are found between the duodenum and the proctodaeum, each attached to a villus by the well-developed ventral sucker with the oral sucker and collar of large spines normally buried in the crevice between two villi. The infestation appears to be often thrown off when the bird is about a year old, but in heavy infestations (upwards of 1,000 flukes) the severe haemorrhagic enteritis may prove fatal. The histological picture is described and illustrated. B.G.P.

363—Eastern States Cooperator.

- a. CRAM, E. B.—“Internal parasites of poultry.” IX (12), 8-9, 20, 22. [1933.]

(a) Cram gives a general account of the protozoa and helminths which parasitize poultry and other domestic birds and discusses the damage done by some of the more pathogenic species. D.O.M.

364—Entomologist's Record.

- a. TAYLOR, J. N.—“Mermithogynes.” XLV (12), 162-164.

(a) Taylor gives an account of a colony of ants of the species *Acanthomyops flavus* on the borders of Hampshire and Sussex which was parasitized by a species of *Mermis*. R.T.L.

365—Estate Magazine.

- a. HODSON, W. E. H.—“Eelworms. III. The potato eelworm.” [Conclusion.] XXXIII (6), 449-451. [1933.]
b. ANON.—“Eelworm and sugar beet.” XXXIII (12), 922. [1933.]

(a) Hodson gives a general account of the life cycle and economic importance of *Heterodera schachtii* with special reference to the strain attacking potatoes.

The longevity of viable eelworm in the soil is stated to be at least ten years and a rotation period of seven or eight years is recommended as the only possible control measure where potatoes have suffered damage from this pest. The use of clean seed tubers is advocated as a method of avoiding the introduction of eelworm to clean land.

M.J.T.

(b) A brief account of the association between "beet-sickness" and the eelworm *Heterodera schachtii* is given, and the danger of introducing this disease into Britain by too frequent cropping of land with sugar beet, is stressed.

M.J.T.

366—Farming in South Africa.

- a. MÖNNIG, H. O.—"Worms in sheep. Different types and their control." VII (81), 414-416, [1932]; VIII (82), 22-26, 28. [1933.]

(a) Mönnig gives a semi-popular account of worms in sheep in South Africa. The first part of the paper deals with general considerations in which the more important parasites, their sites, symptoms produced and methods of control are noted. Life histories of the principal flukes and remedial measures against them follow. In the second and concluding part the tapeworms—adults and larvae—and the roundworms are similarly treated. Numerous photographic reproductions illustrate the article.

J.N.O.

367—Fauna och Flora.

- a. GISLÉN, T.—"Om Leucochloridium och dess förekomst i Sverige." Häft 4, 151-155. [1933.]

(a) During an excursion to Dalby Söderskog, near Lund in South Sweden, Gislén reports the finding of the snail *Succinea putris* parasitized by *Leucochloridium paradoxum*. He mentions that the trematode has also been recorded from central Sweden but that its occurrence is rare and quotes Wesenberg-Lund who estimated the frequency of infection to be 0.1 to 1 per cent.

J.N.O.

368—Field and Laboratory. Dallas, Texas.

- a. ADAMS, F. M.—"Variation in the parasitic worm, *Ascaridia lineata*, from Dallas County, Texas." I (2), 50-53. [1933.]

(a) Adams draws attention to variations that have been observed in the number and distribution of the caudal papillae of *Ascaridia lineata* from chickens in Texas.

P.A.C.

369—Fortschritte der Medizin.

- a. HODER, F.—"Der Nachweis der Echinokokkenerkrankung durch immunbiologische Methoden." LI (43), p. 959. [1933.]

(a) In considering the serological methods of diagnosis of hydatid, Hoder states that the precipitin reaction is not specific and only gives a

positive reaction in approximately 50 per cent. of cases. The complement-fixation reaction is specific and gives a positive result in about 90 per cent. of cases tested. The Casoni reaction is of great value in the diagnosis of hydatid, having a high specificity and giving typical immediate and delayed reactions in all cases of the disease.

P.A.C.

370—Fukuoka-Ikwadaigaku-Zasshi.

- a. SATO, S.—“Immunologische Studien ueber die Strongyloidesinfektion.” xxvi (9), [German summary pp. 88-89.] [1933.]
- b. SATO, S.—“Studien ueber die Therapie der Strongyloidosis.” xxvi (9), [German summary pp. 89-90.] [1933.]

(a) Sato has demonstrated the development of an immunity response to strongyloidosis. It is demonstrated by the strong cutaneous reaction with antigen while if an immunized animal is infected through the abdominal wall with a large number of larvae, a violent haemorrhage follows. Only a mere suggestion of haemorrhage follows in non-immunized animals. Filariform larvae are strongly agglutinated in immune serum, much less so in normal serum.

P.A.C.

(b) Following observations on the treatment of strongyloidosis *in vitro* and in man and animals, Sato recommends the use of Rivanol to prevent auto-infection. Gentian violet in large doses was an effective anthelmintic but was toxic to the host. Filariform larvae were killed *in vitro* in 120 hours by 10 per cent. Yatren, in 72 hours by 1.5 per cent. Stibnal and in 90 hours by 7 per cent. Fouadin. Of nine dyestuffs mercurochrome 220 was fairly effective. Intramuscular injections of 7 per cent. Fouadin and oil of chenopodium combined with Yatren were useless as was the “milk” cure of Mense.

P.A.C.

371—Gazette. Bureau of Animal Industry. Philippine Islands.

- a. JESUS, Z. DE.—“The resistance of the eggs and larvae of swine kidney worm, *Stephanurus dentatus* Diesing, with special reference to the control of stephanuriasis.” III (2), 98-108. [1933.]

(a) This paper is a reprint of the same article published in the Philippine Agriculturist [see Helm. Abs., Vol. II, No. 275a] with the drawback that the tables of experimental data, to which the author refers, apparently have been omitted.

J.N.O.

372—Giornale Italiano di Malattie Esotiche e Tropicali ed Igiene Coloniale.

- a. AMENDOLA, A.—“Sulla presenza del *Cysticercus fasciolaris* in sarcomi multipli polmonari di topolini bianchi.” VI (4), 91-98. [1933.]
- b. TEDESCHI, C.—“Note sulla malacofauna della Somalia (Eil) e su di una nuova specie di assiminea. Primo caso di distosomiasi in Somalia.” VI (9), 225-227. [1933.]

(a) Amendola presents two cases of *Cysticercus fasciolaris* associated with multiple sarcomata in the lungs of white mice, one of each sex. He discusses the literature of tumours in rats and mice at some length—particularly in cases where parasites are also involved—and concludes that in his

own cases the cysticerci were immediately responsible for the new growths, to which the mice were probably already predisposed. B.G.P.

(b) Tedeschi has found *Lymnaea natalensis*, *Melania tuberculata* and a species of *Assiminea* near Eil in Italian Somaliland, but no *Bulinus* or *Planorbis* species. He records a case in which eggs of *Fasciola hepatica* were found in the faeces after a saline purge. B.G.P.

373—Igiene Moderna.

- a. GORRIERI, I.—“L'anchilostomiasi nel Comune di Firenze.” xxvi (4), 121-127. [1933.]

(a) There are foci of hookworm disease in man in the environs of Florence; not the city itself is involved, but the market-gardening areas nearby, on the left bank of the Arno, in which night soil is used as a fertilizer. Gorrieri makes various suggestions for the control of the disease, including the use of ferrous sulphate to sterilize the night soil. B.G.P.

374—Imperial Bureau of Agricultural Parasitology. Publications.

- a. CAMERON, T. W. M.—“The bursate lungworms of domesticated animals.” 36 pp. [1933.]
b. CLAPHAM, P. A.—“Recent researches on helminth immunity.” 20 pp. [1933.]

(a) In this valuable contribution to helminthology, Cameron sets out to deal with our present knowledge of the bursate lungworms found in domesticated and therefore economically important animals.

Dealing with the classification the author mentions the genera to be found and gives a list of the species involved with most of the common synonyms. A few species not yet recorded from domesticated animals but from such hosts as red deer and wild carnivores are included. In the *Metastrongylinae* descriptions of the genera *Dictyocaulus* and *Metastrongylus* are given as well as specific diagnoses of their respective species. An account of the development and life-cycle, together with pathology, prevention and treatment and species distribution, is given for each genus. Descriptions of the genera in the *Protostrongylinae* follow with such information on the life-cycles, pathology and treatment as is known. In a general conclusion the author explains the simple techniques available for accurate diagnosis of an infection which, although slight, may prove dangerous by setting up an epizootic. A reference list of 133 titles is given as well as a host-species list in which the domesticated and wild hosts and distribution of the parasites are noted. J.N.O.

(b) In this concise communication Miss Clapham reviews the more recent literature that has been published on the subject of helminth immunity and summarizes the evidence even when it is contradictory, as much of it is, in a subject only of a few years standing.

In an introduction the author defines the various recognized forms of immunity and proceeds to deal with each in some detail. Little is known of the factors underlying natural immunity. Age immunity, which is not of

general occurrence in helminth infestations, develops naturally and concurrently with the increasing age of the host and is therefore a type of natural immunity. Acquired immunity, about which more is known, includes three types: active immunity produced by previous infestation, active immunity produced by treatment with dead worms or their products, and passive acquired immunity. Considerable work has been done on the first type and the author surveys this in relation to Trematoda, Cestoda and Nematoda. The second type depends on the reaction of the host to the presence of foreign protein of helminth origin while the final type is correlated with the effect of the blood or body fluids of the host on helminth infestations. The author also shows that the nutritional condition of a host has a direct bearing on its immunity and that the presence or lack of vitamins and mineral salts is of significance. Inheritance of immunity is mentioned. A reference list of 67 titles is appended. J.N.O.

375—Indian Journal of Agricultural Science.

- a. AYYAR, P. N. K.—“Further experiments on the root-gall nematode, *Heterodera marioni* (Cornu) Goodey in South India.” III (6), 1064-1071. [1933.]

(a) Ayyar describes experiments to determine the relative susceptibility to attack by *Heterodera marioni* of 33 plant species under conditions prevailing in S. India. The depth distribution of the parasite in the soil and the effects of certain chemical substances in controlling the pest were also tested.

The susceptibility of the chosen plants was found to vary widely, 14 species being apparently immune to attack. The depth distribution of the parasite was found to be limited to the upper 30 inches of the soil. Of the chemical substances tested, potassium cyanide at 800 lb. per acre with ammonium sulphate at 1,000 lb. per acre gave complete control while calcium cyanamide at 1,000 lb. per acre gave almost equally good results. Calcium cyanide at 800 lb. per acre slightly reduced the infection, and sulphur and ammonium carbonate proved useless. M.J.T.

376—Indian Journal of Veterinary Science and Animal Husbandry.

- a. RAO, M. A. N.—“A preliminary report on the adult trematode obtained from *Cercariae indicæ* XXIII Sewell, 1922.” III (4), 317-320. [1933.]
 b. RAO, M. A. N. & AYYAR, L. S. P.—“*Schistosoma suis*, n. sp. A schistosome found in pigs in Madras.” III (4), 321-324. [1933.]
 c. MAHAJAN, M. R.—“Bovine nasal granuloma (snoring disease of cattle) in Hyderabad State.” III (4), 346-349. [1933.]

(a) The Echinostome cercariae *C. indica* XXIII Sewell (1922) from *Limnaea leuteola* encyst in the gills of *Barbus stigma* common in ponds around Madras. When fed to cats and dogs adult flukes developed. The author is of the opinion that the fluke is identical with *Euparyphium malayanum* described from man by Leiper in 1911. A natural infection in a dog is recorded. R.T.L.

(b) Of 81 pigs from the North Arcot District, Madras, four, although apparently healthy, were found to be infected with a new species of Schistosoma. The males have only 4 to 7 testes, the ovary is anterior to the middle of the body, the size of the worm, the shape of the ovum and the angle of its terminal spine are distinctive. It is tentatively suggested that *S. incognitum* is the same; if so *S. suis* n. sp. is a synonym of *S. incognitum* Chandler 1926, hitherto a *nomen nudum*. R.T.L.

(c) Bovine nasal granuloma is recorded on the borders of the Hyderabad State in the village of Inagol. *Schistosoma spindalis* is recorded from goats. *Lymnaea leuteola*, apparently the carrier elsewhere, occurs in areas where the disease is not yet established. Toxic symptoms of tartar emetic injections are described as due to idiosyncrasy in some of the cattle treated. R.T.L.

377—Indian Veterinary Journal.

a. MALKANI, P. G.—“Kumri.” ix (3), 184-192. [1933.]

b. MALKANI, P. G.—“A rapid method of evaginating the scolices in parasitic cysts.” x (2), 122-124. [1933.]

(a) The serious chronic disease in Indian horses known as “Kumri” and characterized by loss of strength in the hind legs and irregular movements arising from defective co-ordination is attributed by Malkani to schistosome infection. Encouraging results follow tartar emetic treatment. R.T.L.

(b) Malkani finds that living cysticerci, *C. tenuicollis* and *C. bovis*, can be made to evaginate in from 20 to 120 minutes with certainty if kept in a 5 per cent. solution of sodium taurocholate at 37°C. R.T.L.

378—Japanese Journal of Zoology.

a. IWATA, S.—“Some experimental and morphological studies on the post-embryonal development of Manson's tapeworm *Diphyllbothrium erinacei* (Rudolph).” v (2), 209-247. [1933.]

(a) Iwata believes that had recent workers taken into consideration the fact that the morphological variations are determined by the duration of development they would have noticed that the caudal proglottids of one and the same individual are variable. Experimental infections show that a single worm has proglottids corresponding to seven described “species”. The proportion of breadth to length of the proglottid, the form and number of uterine coils, the form of the ovary and cirrus all vary so that the slight differences reported are not specific in value. The adult worms produced from plerocercoids from man, hedgehog, weasel, snake and frog are identical. The plerocercoid of the snake does not develop into adult in the monkey but stays in the plerocercoid stage. According to these conclusions *D. mansonii* should be called *D. erinacei* (Rud.). R.T.L.

379—Journal of Agricultural Research.

a. BROWN, L. N.—“Flooding to control root-knot nematodes.” XLVII (11), 883-888. [1933.]

(a) Brown describes experiments to determine the effect of flooding on *Heterodera marioni*.

The experiments were carried out on comparatively large scale plots for prolonged periods and the results tested by laboratory observation. It was found that 4 and 6 months submergence killed the larvae but failed to kill the eggs contained in the soil. Some nematodes survived in soil flooded for 12 months, a period of $22\frac{1}{2}$ flooding months being necessary to kill all nematodes. M.J.T.

380—Journal of the Bombay Natural History Society.

- a. McCANN, C.—“A cure for tapeworm.” xxxvi (1), 282-284. [1933.]

(a) After failure with *Felix mas* and Pomegranate the author followed two-and-a-half pints of pomegranate decoction taken throughout the day by 15 drops of pure chloroform in half a wine glass of water. A complete *Taenia saginata* was passed one-and-a-half hours later. A second intractable case passed 50 oz. of tapeworm with 38 heads. R.T.L.

381—Journal of the Council for Scientific and Industrial Research. Australia.

- a. OXER, D. T.—“Carbon tetrachloride. A note on its toxicity for sheep.” vi (4), 279-284. [1933.]

(a) OXER concludes that the mechanism producing intoxication following carbon tetrachloride administration in sheep may differ from that in the dog and that liver necrosis is not essential for the production of toxic symptoms. R.T.L.

382—Journal of the Department of Agriculture, Dublin.

- a. CARROLL, J.—“A study of the potato eelworm (*Heterodera schachtii*) in the Irish Free State.” xxxii (2), 183-201. [1933.]

(a) Carroll describes the distribution of *Heterodera schachtii* attacking potatoes in Ireland and records field observations and the results of pot experiments.

The effects of the physical types of soils and their pH values are described. The results of the pot experiments showed that the intensity of the disease symptoms evinced by the plants varied directly with the quantity of eelworm cysts in the soil, and that the nematode alone may produce characteristic symptoms of disease without the intervention of any other factor. M.J.T.

383—Journal of the Department of Agriculture of South Australia.

- a. McKENNA, C. T.—“Two diseases of sheep of economic importance in South Australia.” xxxvii (3), 275-278, 280-284. [1933.]

(a) “Parasitic gastro-enteritis in Sheep” and “Black Scour of Lambs” are the two diseases dealt with by McKenna. Parasitic gastro-enteritis is of two types, viz., Trichostrongylosis and Haemonchosis. In the former a dark coloured diarrhoea is stated to be invariably present. An average loss of 30 per cent. is estimated. Treatment is almost ineffective. With Haemonchosis scouring is variable and sometimes absent but it is more rapidly fatal. Carbon tetrachloride mixture is recommended. Copper

sulphate is less effective but safer and easier to administer. Predisposing factors are discussed. Preventive measures include (a) good feeding; (b) subdivision; (c) burning off paddocks; (d) use of licks where the natural pasture is deficient.

R.T.L.

384—Journal of the Egyptian Medical Association.

- a. KHALIL, M.—“The discovery of the life-history of *Heterophyes heterophyes*.” XVI (7), 796. [1933.]

(a) In 1923 Kobayashi and Khalil both observed that *Heterophyes* encysted in the Egyptian mullet, and Khalil experimentally infected cats. A very common marine snail, *Pirenella conica*, occurs in lake Manzala and harbours four different cercariae. One of these is a lophocercous cercaria which experimentally encysts in laboratory fed *Gambusia*. These fed to a laboratory bred dog gave rise to *Heterophyes heterophyes*. When salted the fish is known as “Fessikh” and this is regarded as the most common source of infection. At Mataria 53 out of 60 school children were found to be infected.

R.T.L.

385—Journal of the Elisha Mitchell Scientific Society.

- a. ALLEN, S. A.—“Parasites and commensals of North Carolina crayfishes.” XLIX, 119-121. [1933.]

(a) Allen notes, among other things, a supposed new species of *Rhabditis*, apparently distinguished from all other species of the genus by the absence of the characteristic oesophageal bulb. The specimens are found between the gill plates of *Cambarus acuminatus* and *C. blandiggii* and are given the name, *Rhabditis cambari*, n. sp.

E.M.S.

386—Journal of the Japanese Society of Veterinary Science.

- a. SUGIMOTO, M.—“On a new species of the genus *Eustrongylides* from Formosan heron.” XII (1), 29-41. [1933.]
- b. ONO, S.—“Studies on the life-history of *Echinorhynchus gigas* in Manchuria. I.” XII (2), 61-68. [1933.]
- c. ONO, S.—“Studies on the life history of Spiruridae in Manchuria. I. The morphologic studies on the encysted larvae found in two species of dung beetle, dragonfly, hedgehog, domestic fowl, and duck, as well as their infestation experiments with rabbits and dogs.” XII (3), 165-184. [1933.]
- d. SUGIMOTO, M.—“On a trematode parasite (*Echinostoma cinetorchis* Ando & Ozaki 1923) from a Formosan dog.” XII (4), 231-237. [1933.]
- e. ISSHIKI, O.—“On a nematode (*Haemonchus similis* Trav. 1914) from Korean calves.” XII (4), 251-263. [1933.]

(a) From tubercles in the gizzard of a night heron, *Nycticorax nycticorax* (L.), a new species *Eustrongylides formosana* is described by Sugimoto.

R.T.L.

(b) Pigs are frequently infested with *Echinorhynchus gigas* in Manchuria where the young worms occur in the rodent *Citellus mongolicus*. The intermediate hosts are *Harpalus tridens*, *Gymnopleurus* sp. and *Phyllo-dromia* sp.

R.T.L.

(c) In Manchuria the dung beetles, *Gymnopleurus mopus* and *Scarabaeus sacer*, and the dragon fly *Anax parthenope* are heavily infected with larval *Spirocerca*. Hedgehogs, domestic fowl and ducks harbour larval stages. These fed experimentally to rabbits and dogs gave rise to adult *Arduenna* in the aorta wall. An aorta cyst taken from a dog and fed to another dog gave rise to a cyst on the external wall of the stomach. R.T.L.

(d) *Echinostoma cinetorchis* previously recorded from the brown rat and from man is here recorded from a Formosan dog. The number of spines on the collar is 35; exceptionally 29 to 32. R.T.L.

(e) Twenty-two per cent. of Corean calves harbour *Haemonchus similis* hitherto recorded only from India and Europe. Slight variations are noted by Isshiki. R.T.L.

387—Journal of the Marine Biological Association.

a. BAYLIS, H. A. & JONES, E. I.—“Some records of parasitic worms from marine fishes at Plymouth.” XVIII (2), 627-634. [1933.]

b. JONES, E. I.—“Studies on the Monogenea of Plymouth. *Gastrocotyle trachuri* v. Ben. and Hesse, 1863.” XIX (1), 227-232. [1933.]

(a) Twelve species of trematodes, 4 of cestodes, 11 of nematodes and 2 of acanthocephala parasitic in fishes are added to the records in the Plymouth Marine Fauna by Baylis and Jones. *Paracotyle* Johnstone, 1911 is regarded as synonymous with *Microbothrium* Olsson, 1869 and *Octobothrium* F. S. Leuckart, 1827 is replaced by *Mazocraes* Hermann, 1782. *Echinorhynchus leidy* from the rockling is of particular interest as it has hitherto been found in “lake trout” in North America. R.T.L.

(b) Jones describes and figures in detail the anatomy of *Gastrocotyle trachuri* van Beneden and Hesse (1864), reporting it for the first time in *Trachurus* (*Caranx*) *trachurus* from British waters. The species was originally described from young specimens, and was subsequently redescribed only by Paroni and Perugia (1890). The present work represents the first complete account. The armature of the suckers is found to be very different from the description given by van Beneden and Hesse, and the crochets surrounding the genital opening do not agree with the description of Paroni and Perugia. The genital organs and the crochets at the posterior extremity of the body are here described for the first time. E.M.S.

388—Journal of Morphology.

a. JORDAN, H. E. & REYNOLDS, B. D.—“The blood cells of the trematode *Diplodiscus temperatus*.” LV (1), 119-126. [1933.]

(a) Jordan and Reynolds describe in detail the lymph system of *Diplodiscus temperatus*, paying special attention to the “blood” cells. They find two main regions of lymphogenous tissue—the subcuticular layer of the general parenchyma, and in certain specimens a bilaterally paired “blood island” surrounding the lateral vascular channels at the level of the intestinal bifurcation. The cells formed in these areas, haemocytoblasts, may migrate into the vascular channels, where they proceed to degenerate; sometimes they suggest a specialized blood corpuscle. Other haemocytoblasts differentiate extra-vascularly into eosinophile granulocytes,

whose functions are unknown. Phagocytosis and mitosis of any of these cells are surprisingly rare. The cells within the lymph vessels probably function in respiration and nutrition, and perhaps also, by their dissolution, help to maintain the viscosity and osmotic tension of the plasma. E.M.S.

389—Journal of Parasitology.

- a. WALTON, A. C.—“The Nematoda as parasites of Amphibia.” *xx* (1), 1-32. [1933.]
- b. NOLF, L. O. & CORT, W. W.—“On immunity reactions of snails to the penetration of the Cercariae of the strigeid trematode, *Cotylurus flabelliformis* (Faust).” *xx* (1), 38-48. [1933.]
- c. KRULL, W. H.—“New snail and rabbit hosts for *Fasciola hepatica* Linn.” *xx* (1), 49-52. [1933.]
- d. CANAVAN, W. P. N.—“A six-suckered tapeworm, *Taenia hydatigena* [= *hydatigena*] Pallas, 1766.” *xx* (1), 57. [1933.]
- .. HELMINTHOLOGICAL SOCIETY OF WASHINGTON.—“Proceedings of the 152nd-154th meetings.” *xx* (1), 62-79. [1933.]
- f. COBB, N. A.—“New nemic genera and species, with taxonomic notes.” *xx* (2), 81-94. [1933.]

(a) Walton monographs the nematodes of Amphibia, incorporating all available literature on taxonomy up to 1931. He includes a host list and describes the female of an unidentified species of *Atractis* from *Bufo viridis*, and *Oxysomatium baylisi* sp. nov., from *Ceratophrys dorsata* from Brazil.

T.W.M.C.

(b) Nolf and Cort obtain evidence of a partial immunity in *Lymnaea stagnalis appressa* and *L. stagnalis perampla*, infected with sporocysts of *Cotylurus flabelliformis* (Strigeid), to penetration of the cercaria and development of the metacercaria of the same species. The same snails infected with *Schistosomatium douthitti* showed evidence of a partial non-specific immunity.

T.W.M.C.

(c) The mollusc *Fossaria modicella* Gay, in the United States has been experimentally infected by Krull with miracidia of *Fasciola hepatica*. The cercariae were discharged 32 days later. A wild cottontail rabbit *Sylvilagus floridanus mallurus* was experimentally infected with these cercariae, and passed *F. hepatica* ova 111 days later. Three adults 20 mm. long were obtained post mortem.

R.T.L.

(d) Canavan describes an abnormal specimen of *Taenia hydatigena* with a normal rostellum but with six suckers and a small secondary strobile fused with the surface of the main strobile for its entire length.

T.W.M.C.

(e) Abstracts of 25 helminthological papers presented at the 152nd-154th meetings are dealt with by the Secretary.

Alicata and McIntosh propose that the genus *Arduenna* become a synonym of *Ascarops*, that the correct name for *Arduenna strongylina* and *Ascarops minuta* be *Ascarops strongylina* and that the subfamily Arduenninae become Ascaropsinae. Andrews shows that typical first stage larvae emerge from *Ostertagia circumcincta* eggs within 24-48 hours and give rise to second stage larvae at the end of 4½ days; infective larvae appear at the end of the 6th day. By examining material from *Lynx canadensis* Chitwood concludes that *Dirofilaria repens* is a synonym of *Filaria acutiuscula*, resulting in *Dirofilaria acutiuscula* n. comb. Christie discusses the possible rôle of some saprophytic

or semi-parasitic nematodes, infesting underground portions of plants, in producing lesions and decayed areas. Some success is claimed in the rearing of such forms on different culture media. Cooper discusses the effects of aqueous solutions of crude ammonium thiocyanate upon the larvae of the root knot nematode, *Heterodera marioni* (= *Caconema radiculicola*). Courtney records *Ranunculus occidentalis* Nutt. as a new host of *Anguillulina* (*Tylenchus*) *dipsaci* in Oregon. Dikmans failed to find nodules, definitely attributable to *Ostertagia ostertagi*, in the fourth stomach walls of cattle in southern Louisiana, the parasites usually being located beneath a mucous layer in the pyloric end of the stomach. In 130 out of 140 sheep examined *O. circumcincta* also was found in the pyloric end of the abomasum. Jones reports the California valley quail, *Lophortyx californica*, as host for *Hymenolepis carioca* and the ground beetle, *Celia muscula*, as additional intermediate host for *Raillietina magninumida* of the guinea-fowl. Steiner discusses *Cylindrogaster longistoma* and its relationship with other nematodes, paying special attention to the comparative morphology of the stomatal and oesophageal parts. Wehr records the first occurrence in the United States of America of *Amidostomum spatulum* from a Canadian goose, *Branta canadensis*, from Albany, N.Y. Chitwood considers that *Spirocerca sanguinolenta* has never been the valid name for the species and that its correct name should be *Spirocerca lupi* n. comb. Christie and Crossman discuss the possible dissemination of a species of *Lycolaimus* from diseased ginger roots by insects. Cooper discusses the results of preliminary tests on the effect of some arsenic compounds on some plant parasitic nematodes. Cram records the black-crowned night heron, *Nycticorax nycticorax hoactli*, as a new host for *Eustrongylides ignotus*. Sherman discusses the results of experiments on the effect of hot-water treatment on *Anguillulina* (*Tylenchus*) *dipsaci* present in dried narcissus material. Spindler shows, from experimental evidence, that lack of vitamin A in the diet of rats lowered their resistance, while rats fed a balanced diet developed a marked resistance to a super-infection with *Nippostrongylus muris*. Alicata discusses the development of the swine nodular worm, *Oesophagostomum dentatum*, in experimentally infected guinea-pigs and a rabbit. Cooper shows, from preliminary tests, that derris extract and rotenone fail to injure *Anguillulina* (*Tylenchus*) *dipsaci* even in the strongest feasible concentrations. Cram records the Gambel quail, *Lophortyx gambeli gambeli*, from Tucson, Arizona, as a new host and locality for *Habronema incerta*. Meggitt gives a tabular summary of 918 dissections of Burmese vertebrates to show the extent of helminth parasitism during 1923-1932. Mueller considers there is complete agreement between the genera *Dacnitoidea* and *Dichelyne* and that the former is definitely reduced to synonymy. Spindler has carried out skin penetration tests with infective larvae of *Stephanurus dentatus* and finds that larvae in water on intact skin of pigs are unable to infect the animals but infection occurs when cultures containing larvae are spread on intact skin. Underwood reports a case of infestation of *Dirofilaria immitis*, acquired locally, in a Virginia dog and also describes the effect of N-Butylidene chloride on colts infested with ascarids. Wehr, from a study of the figures and description of *Echinurioides plectropteri* (the only species of this genus), concludes that *Echinurioides* and *Tetrameres* are identical, and that the former name should become a synonym. Wright discusses the influence of a vitamin A deficient diet on the development of *Toxocara canis* in the dog.

J.N.O.

(f) In connection with the completion of the work on the late Dr. N. A. Cobb's key to the genera of free-living nematodes, it has been found necessary to publish, from his manuscript material, descriptions of several new genera and species.

These are as follows: Family ENOPLIDAE: *Antopus* n. g. containing *A. (Stenolaimus) serialis* (Baylis, 1916); *Tubolaimella setosa* n. g., n. sp.; *Angustinema nudum* n. g., n. sp.; *Halalaimoides acuminata* n. g., n. sp.; *Cyathonchus tenuicaudatus* n. g., n. sp. Family MONHYSTERIDAE: *Cenolaimus supersentiens* n. g., n. sp.; *Pulchranemella setosa* n. g., n. sp.; *Cryptolaimus* n. g. containing *C. cylindricollis* n. sp. and *C. pellucidus* n. sp.; *Linolaimus quadricoma* n. g., n. sp. Family CHROMADORIDAE: *Neotonchus punctatus* n. g., n. sp.; *Dispira punctata* n. g., n. sp.; *Dispirella truncata* n. g., n. sp.; *Synonchiella* n. g. containing *S. truncata* n. sp., *S. ferox* n. sp. and *S. denticulata* n. sp.; *Dasyllaimus nudus* n. g., n. sp.; *Denticulella pellucida* n. g., n. sp.; *Nygmatonchus scriptus* n. g., n. sp.; *Nunema nanum* n. g., n. sp. Family DESMODORIDAE: *Neonyx* n. g. containing *N. cancellatus* n. sp., *N. campycoma* n. sp. and *N. alatus* n. sp.; *Sigmophora rufum* n. g., n. sp.; *Desmodorella cephalata* n. g., n. sp.; *Pristionema octalata* n. g., n. sp.; *Pteronium obesum* n. g., n. sp. Family TYLENCHIDAE: *Halenchus* n. g. containing *H. (Tylenchus) fucicola* (de Man, 1892) and *H. (T.) mediterranea* (Micol, 1922); *Rhabdonchus cephalatus* n. g., n. sp.

The systematic relationships of some of the marine, brackish-water and other nematodes are discussed in an introductory note. J.N.O.

390—Journal of Pharmacology and Experimental Therapeutics.

- a. CHRISTENSEN, B. V. & LYNCH, H. J.—“The effect of anthelmintics on the host. I. Tetrachlorethylene. II. Hexylresorcinol.” XLVIII (3), 311-316. [1933.]

(a) Tetrachlorethylene in therapeutic doses in dogs causes considerable cardiac and respiratory depression while there are pathological changes in the mucosa of the small intestine which becomes spongy and extremely shrivelled. Repeated doses cause pronounced pathological changes in the small intestine. There is considerable damage to the heart tissue. The toxic effect on the liver is greater than on the kidney. Hexylresorcinol in therapeutic doses causes no apparent symptoms and in single doses no macroscopical changes. Repeated doses, however, induce inflammation and necrosis. The kidneys suffer no damage but the liver and heart tissue are affected. R.T.L.

391—Journal of the Siam Society. Natural History Supplement.

- a. PEARSE, A. S.—“Parasites of Siamese fishes and crustaceans.” IX (2), 179-191. [1933.]

(a) Descriptions are given by Pearse of the parasites found in air-breathing fishes in Siam. New species are described, viz., *Camallanus anabantis* n. sp. and *Proleptus anabantis* n. sp. from *Anabas testudineus*, *C. ophicephali* n. sp. from *Ophicephalus striatus*, *C. trichogasterae* n. sp. from *Trichogaster trichopterus* and *Procamallanus kerri* n. sp. from *Glossogobius giurus*. A new genus *Thelazo* in the Thelaziidae is erected for *T. glossogobii* n. sp. from *Glossogobius giurus*. R.T.L.

392—Journal of Tropical Medicine and Hygiene.

- a. TOMB, J. W. & HELMY, M. M.—“The toxicity of carbon tetrachloride and its allied halogen compounds.” xxxvi (18), 265-270; (21), 334-339. [1933.]
- b. ARCHIBALD, R. G.—“The endemiology and epidemiology of schistosomiasis in the Sudan.” xxxvi (22), 345-348. [1933.]

(a) Tomb and Helmy find that carbon tetrachloride and related halogen derivatives of the aliphatic hydrocarbons are capable of causing fatal intoxication—especially in children and adolescents, possibly due to insufficiency of calcium reserves. Immediate poisoning is generally associated with liver disease, delayed poisoning with non-elimination of the drug. In Egypt, fatal intoxication is closely associated with ascariasis; the worms may mechanically obstruct the saline purge or diminish the natural resistance to the drug. The traces of carbon disulphide found in carbon tetrachloride are of no toxicological significance. When intoxication is shown, provided the drug has been thoroughly evacuated, intensive treatment by intravenous injections of calcium gluconate (Sandoz) is capable of saving life. T.W.M.C.

(b) Schistosomiasis is now fairly widespread in the Sudan having been introduced from Egypt and from West Africa. The Upper Nile province is almost a buffer state between intestinal and vesical schistosomiasis. There is in the Sudan no seasonal incidence in infection. The molluscan carriers breed all the year round. Although in the laboratory these molluscs cannot resist prolonged desiccation viable molluscs have been recovered from the subsoil of inland lakes exposed to drying for 3 to 4 months. Although *S. bovis* is very prevalent in cattle in the Sudan it has not been reported from man. Infected *Bullinus* can discharge cercariae for 75 days and infected *Planorbis* for 58 days. R.T.L.

393—Journal of the Washington Academy of Sciences.

- a. KRULL, W. H.—“The snail *Pseudosuccinea columella* (Say) as a potentially important intermediate host in extending the range of *Fasciola hepatica* Linn.” xxiii (8), 389-391. [1933.]
- b. CHITWOOD, B. G.—“On some nematodes of the superfamily Rhabditoidea and their status as parasites of reptiles and amphibians.” xxiii (11), 508-520. [1933.]

(a) *Pseudosuccinea columella* which Krull has found to be an efficient intermediary for *Fasciola hepatica* has a wide distribution in ponds and streams where water is more or less stagnant, extending from Nova Scotia to Minnesota, Eastern Kansas and Central Texas, Manitoba and Quebec south to Texas and Florida. This species is very prolific, a new generation being produced every two months in the laboratory during the winter. R.T.L.

(b) Chitwood describes and figures 4 species of rhabditoid nematodes parasitic in reptiles and amphibians, and makes some changes in the systematics of the superfamily. In the ANGIOSTOMATIDAE he describes *Angiostoma plethodontis* n. sp. from *Plethodon cinereus*. In the CYLINDROGASTERIDAE n. fam. he makes *Goodeyus* n.g. to contain Goodey's *Cylindrogaster ulmi*, and also *Longibucca vivipara* n. g., n. sp. from *Pseudoboa cloelia*. The other two parasites are *Rhabditis terricola* and *R. lucanii*, both from *Salamandra salamandra*. B.G.P.

394—Lingnan Science Journal.

- a. CHEN, H. T. & WANG, S. C.—“Notes on some abnormal *Clonorchis sinensis*.” XII (4), 541-546. [1933.]

(a) Chen and Wang describe 8 out of 10 specimens of *Clonorchis sinensis*, recovered from the liver of a dog, which show anomalies due to distension, by eggs, of intestine, caeca and uterus. The authors consider that the eggs in the caeca were apparently ingested by the flukes and that environmental factors may be the cause of their devouring their own eggs. Structural defects, possibly of congenital origin, of the common genital opening, of the genital atrium or of the male opening are mentioned as a possible explanation of the presence in the testes of eggs which may have passed directly into the seminal vesicle before discharge from the genital atrium.

J.N.O.

395—Lingnan Science Journal Supplement.

- a. HOEPLI, R.—“On histolytic changes and extra-intestinal digestion in parasite infections.” XII, 1-11. [1933.]
 b. HSÜ, H. F.—“The oesophageal glands of nematodes.” XII, 13-21. [1933.]
 c. FENG, L. C.—“Some parasites of mosquitoes and flies found in China.” XII, 23-31. [1933.]
 d. LI, H. C.—“Parasitic nematodes: studies on their intestinal contents. I. The feeding of dog ascaris, *Toxocara canis* (Werner, 1782). II. The presence of bacteria.” XII, 33-41. [1933.]
 e. CHEN, H. T.—“On a method of expelling disintegrated tapeworms in *Ctenocephalides felis*.” XII, 43-48. [1933.]

(a) Hoepli discusses tissue alterations in parasitic infections by means of examples either studied by himself or recorded by various authors in the literature. The transformation of tissue due to the secretions of parasites such as mites, ticks, trematodes and nematodes represents degenerative changes or complete necrosis which appear as finely granular or liquefied material in histological preparations. In most cases described the necrotic material undoubtedly serves as food and therefore represents extra-intestinal digestion. With regard to parasitic nematodes the author mentions that there apparently exists a relation between the development of oesophageal glands and the degree of tissue changes.

J.N.O.

(b) Hsü gives a general review of the literature dealing with oesophageal glands in nematodes. He discusses their number, relative size and shape, number of nuclei present, the character of the outlet tubes and the site of their openings. The function of the oesophageal glands is generally considered as excretory. The author believes that an intensive comparative morphological and physiological study of these organs would contribute to new phylogenetic and biological facts.

J.N.O.

(c) Feng has made observations on parasites of mosquitoes and flies collected in China in connection with field work on malaria and filariasis and notes the presence, in mosquitoes, of gregarines, flagellates, protozoan and trematode cysts and mites and, in flies, of Hymenopterous parasites. The trematode cysts, each containing an embryo, were found principally in the abdominal cavity but also in the thorax in 4 out of 251 *Anopheles minimus* in Amoy. The mosquito acts as secondary host. The cysts are described but the species remains unidentified.

J.N.O.

(d) Li has carried out experiments to decide on what kind of material *Toxocara canis* normally feeds. After describing his material, technique and results the author shows that the parasite feeds on the intestinal contents of its host and may also ingest mucus or disintegrating cells of the uppermost mucosa layer. It does not normally cause any distinct lesions. Other experiments indicate that about 50 per cent. of examples of 7 nematode species examined, which normally inhabit different parts of the digestive tract of man, mammals and birds, contain bacteria in their intestines. The dominant bacteria, determined by using agar media under aerobic conditions, were, like those of their hosts' organs, *B. coli*. J.N.O.

(e) During an investigation into the reactions of the cat flea, *Ctenocephalides felis*, to infection with *Dipylidium caninum*, Chen found some of the cysticercoids became encapsuled and killed by leucocytes in the body cavity of the larval or adult host. Encapsulation was usually followed by disintegration of the parasite and its transformation into a mass of yellowish pigment which was mechanically transferred, first of all, to the vicinity of the mid-gut by the circulation of the plasma in the coelomic cavity. Subsequently the pigment, possibly aided by leucocytes, penetrated the basement membrane and muscle fibres and reached the epithelial cells of the intestine. Finally, the normal physiological process of periodic shedding of intestinal epithelium automatically discharged the invading pigment into the gut lumen. The author discusses this phenomenon in relation to other methods of excretion advanced by other workers. J.N.O.

396—Luonnon Ystävä.

- a. VAPPULA, N. A.—“Äkämäänkeroinen (*Heterodera radiculicola* Greeff).” xxxvii (5), 173-178. [1933.]

(a) Vappula records the first discovery of *Heterodera radiculicola* in Finland, where it was found in two places in 1932 attacking tomatoes and cucumbers in glasshouses. A brief review of the distribution, bionomics, control measures and general economic importance of the nematode is given. M.J.T.

397—Lyon Médical.

- a. FROMENT, J., WERTHEIMER, P., DECHAUME, J. & FEUILLADE.—“Cysticercose cérébrale.” cli (19), 567-573. [1933.]
b. MORENAS, L.—“Considérations sur le diagnostic biologique de la cysticercose cérébrale.” cli (21), 636-637. [1933.]

(a) This paper consists of a detailed clinical discussion of a case of *Cysticercus cellulosae* in the brain. The patient, who had been an epileptic for 8 years, and had been in Morocco, developed intra-cranial hypertension leading to many complex symptoms including left trigeminal syndrome, papillary oedema, aphasia, right facial paralysis and visual and acoustic disturbances. By injection of the lateral ventricles a tumour was located in the left frontal lobe and in contact with the temporal lobe. The tumour was excised and diagnosed as due to *C. cellulosae*, but the patient died. The writers comment on the rarity of cerebral cysticercosis in France and consider that surgical intervention offers the only means of relief. S.G.S.

(b) Morenas considers that a reliable diagnosis of cerebral cysticercosis can be based upon a positive intra-dermal (Casoni) reaction accompanied by a high eosinophilia. The eosinophile count is higher in infections with larval tapeworms than in infections with the adult parasite. Eosinophiles occur in the cerebro-spinal fluid as well as in the blood. The intra-dermal reaction is not specific, but is a group reaction. Fluid from the bladder of any cysticercus or hydatid may be used. *C. tenuicollis* is a convenient source of fluid antigen. A positive result indicates infection with a larval cestode, and, though it does not differentiate between a cysticercus, a coenurus and a hydatid, it suffices, in conjunction with cerebral symptoms, to indicate the necessity of surgical intervention. S.G.S.

398—Maanedsskrift for Dyrlæger.

- a. NIELSEN, M.—“Undersøgelser over Forekomsten af Habronema-Arter som Snyltene hos Hesten i Danmark.” XLIV, 641-649. [1933.]

(a) This paper contains a discussion of the aetiology and pathology of cutaneous, gastric and colonic habronemiasis and “Summer sore” in horses, with special reference to its rare occurrence in Denmark whence the writer thinks it had been introduced from abroad (? Germany). *Musca*, *Stomoxys* and other flies are the intermediate hosts. The fly maggots are infected by swallowing *Habronema* ova in the horses’ dung. Horses are infected from flies through abrasions or exposed skin (eyelids, glans penis, genitalia) or by swallowing infected flies or by the escape of larvae from flies on the horses’ lips. In these regions granular neoplasms and “summer sores” may be set up, as well as pathological changes in the liver and lungs where larvae, carried in the blood stream from cutaneous lesions, may set up peribronchial nodules. Development to adults occurs only in the horses’ stomach: elsewhere development is arrested.

In Denmark the writer examined 172 horses and found *Habronema* 3 times: all three species occur. *H. megastoma* is the most dangerous since it gives rise to stomach nodules and sometimes hepatitis. S.G.S.

399—Malayan Medical Journal.

- a. PAKIAM, A. X.—“A short note on the epidemiology of *Schistosoma japonicum* infection among immigrant Chinese in Malaya.” VIII (4), 294-295. [1933.]
b. PALLISTER, R. A.—“Trichuriasis in Malaya.” VIII (4), 303-305. [1933.]

(a) A study of post-mortem records at the Tan Tock Seng Hospital in Singapore shows that Chinese immigrants of the Hockchow and Hockchia tribes from the northern part of the Fukien Province drained by the Min Kiang are infected with *Schistosoma japonicum* and that the territory around there is an endemic focus. R.T.L.

(b) Two cases showing heavy infections with *Trichuris trichiura* are reported. One was successfully treated by enemata of carbon tetrachloride and oil of chenopodium. R.T.L.

400—Medical Parasitology and Parasitic Diseases.

- a. TERSKIKH, V.—“On the helminthocenotic index.” II (1/2), 84-86. [In Russian.] [1933.]
- b. MARCARIANZ, G.—“The rôle of *Ascaris* in the liver pathology. A case of liver ascariidosis.” II (1/2), 87-88. [In Russian.] [1933.]
- c. ANON.—“Die Dehelminthisation im System des Sowjetgesundheitswesens.” II (3), 113-116. [In Russian : German summary p. 116.] [1933.]
- d. SCHULZ, R. E.—“Die Wurmkrankheitenbehandlung, die Wege ihrer Entwicklung und Gegenwartiger Stand.” II (3), 117-130. [In Russian : German summary pp. 130-131.] [1933.]
- e. SCHULZ, R. E.—“Prüfungsmethoden und Effektivitätsindizien der Anthelminthica.” II (3), 131-142. [In Russian : German summary pp. 142-143.] [1933.]
- f. MITTELMANN, G.—“Zestodosen-Behandlung mit Cucurbita-Samen.” II (3), 143-145. [In Russian : German summary p. 146.] [1933.]
- g. SERBINOV, P. & SCHULMANN, E.—“Über Dehelminthisation bei Taeniidosen.” II (3), 146-148. [In Russian : German summary p. 148.] [1933.]
- h. SSEMENOWA, N.—“Trichocephalosis und ihre Behandlung mit Osarsol.” II (3), 149-151. [In Russian : German summary p. 151.] [1933.]
- i. KUTSCHINSKY, W.—“Über Dehelminthisation bei Hymenolepidosis mit Osarsol.” II (3), 151-154. [In Russian : German summary p. 154.] [1933.]
- j. PLOTNIKOV, N. & ZERTSCHANINOV, L.—“Über Fuadin-Behandlung der Opisthorchosis.” II (3), 154-158. [In Russian : German summary p. 158.] [1933.]
- k. SCHULZ, R. E. & SCHICHOBALOWA, N. P.—“Prüfung der Maknin-Wirksamkeit bei Askariose.” II (3), 159-165. [In Russian : German summary p. 165.] [1933.]
- l. SCHULZ, R. E.—“Hexylresorcin und Heptylresorcin als Anthelminthica.” II (3), 166-170. [In Russian.] [1933.]
- m. SCHULMANN, E., BARDENSTEIN, D., SATURENSKAJA, B., KOWA-LEVSKAJA, N., LACHOWETSKAJA, R., MOROSOVSKAJA, M., PARETSKAJA, M., FURMANSKAJA, A. & CHALANAJ, O.—“Zum Auftreten der Hakenwurmkrankheit und der Strongyloidosis im Donez-Kohlenrevier und im Krivoroschki-Erzgebiet und über die Bekämpfung [Bekämpfung] der Wurminvasionen.” II (4/5), 310-317. [In Russian : German summary p. 317.] [1933.]
- n. BRANSBURG, M., GORELIK, S. & SCHICHOBALOWA, N.—“Prüfung des Filicilens—eines neuen Mittels zur Behandlung der Zestodosen beim Menschen.” II (4/5), 317-322. [In Russian : German summary p. 322.] [1933.]
- o. RYBINSKI, S. & ZRYKINA, L.—“Sur l'exploration helminthocoprologique quantitative simplifiée d'après Mannaláng.” II (4/5), 323-325. [1933.]

(a) Terskikh discusses the “helminthocenotic index” of Skrijabin & Schulz, and its useful modifications. The index is a complex numerical formula applied to populations which have been helminthologically surveyed, and is designed to show the relative and absolute incidence of the 4 principal species of helminths found. As modified by Tchorschin the index also shows the extent of multiple infections.

B.G.P.

(b) Marcarianz emphasizes the dangers of ascariasis in those cases where the adult worms migrate up the bile ducts : during pregnancy such migration may be followed by abortion.

B.G.P.

(c) During the period of the second 5-year plan the U.S.S.R. contemplates the de-helminthization of several groups of workers through the organization of its chain of helminthological institutes and treatment centres.

B.G.P.

(d) Schulz discusses the rationale of anthelmintic treatment, reviews the existing drugs and methods of administration, and touches upon the relationship between efficacy and physico-chemical properties. B.G.P.

(e) Schulz discusses various coefficients designed to test the efficacy of anthelmintics. Those relating (i) worms expelled to number of persons treated, (ii) persons cured to persons treated, and (iii) worms expelled to worms originally present, are each inadequate alone and should be used in conjunction. B.G.P.

(f) In 127 cases of infection with *Taenia saginata*, *T. solium* or *Dibothriocephalus latus*, Mittelman has produced scolices from more than half by giving as anthelmintic 300 gm. pumpkin seeds in 50 cc. water and 50 to 100 gm. honey. The mixture is given on an empty stomach after 2 to 4 days preparation with salines and enemata, and is claimed to be safe for home treatment. B.G.P.

(g) Serbinov and Schulmann have treated 224 cases of *Taenia saginata* and *T. solium* with male fern extract. They discuss the administration of the drug and the preparation of the patient. B.G.P.

(h) Ssamenowa has treated 102 trichuris cases with "Osarsol," a Russian arsenic preparation resembling Stovarsol, with 75 per cent. successes. There were transitory toxic symptoms in 12 cases. B.G.P.

(i) Kutschinsky finds Osarsol useful against *Hymenolepis nana* and thinks it may attack not only the adults but also the cysticercoids in the intestinal villi. He describes 5 cases in detail. B.G.P.

(j) Plotnikov and Zertschaninov confirm Erhardt and Szidat's finding that a single subcutaneous injection of Fuadin (0.4 cc. per Kg. body weight) has an anthelmintic effect on cats infested with *Opisthorchis felineus*. Its use against this parasite in man, in a single dose or in 10 doses, produced nothing but the onset of toxic symptoms in one case. B.G.P.

(k) Schulz and Schichobalowa find "Maknin" less efficacious against ascarids in man and cats than santonin, for which it is a Japanese substitute. It was administered in various forms to 35 cats and 53 children. B.G.P.

(l) Schulz reviews the literature (27 references) on hexyl- and heptyl-resorcinol as anthelmintics. B.G.P.

(m) Schulmann and his numerous collaborators report, as a result of extensive examinations of miners in the coal and ore districts of the Ukraine, 3 imported hookworm cases and 18 partly endemic cases of strongyloides. The official prophylactic measures are considered adequate to prevent the spread of hookworm. B.G.P.

(n) Bransburg *et al.* have tested "Filicilin," a new water- and oil-soluble preparation of *Filix mas*, in various vehicles, orally and by duodenal tube, against cestodes in 171 cases. The drug is said to be effective and free from the toxic properties of male fern extract. B.G.P.

(o) Rybinski and Zrykina have employed Mannalang's modification of Stoll's method for counting helminth eggs, and here give an outline of the method. They have checked the value, number of eggs laid per female worm per day, for ascaris and trichuris by examining 17 cases post mortem. The values show variation from case to case, and are said to be considerably lower than those of Mannalang, but are not quoted in detail. B.G.P.

401—Medycyna Doświadczalna i Społeczna.

- a. TUSTANOWSKA, A.—“Występowanie larw brzożdżowca szerokiego (*D. latus*) w szczupakach z rynku warszawskiego i z jeziora Wigry.” [Presence of larva of *Dibothriocephalus latus* in pike from lake of Wigry and in those sold in markets of Warsaw.] XVI (1/2), 73-88.

(a) Tustanowska examined 75 whole pike, and the viscera of 195 others, from the Warsaw market, and found plerocercoids of *Dibothriocephalus latus* in 22 per cent. of the latter (large fish) and in 10 per cent. of the former (small fish). The corresponding values for intensity of infestation were 25 to 50 and 9 to 30 plerocercoids per fish respectively. Plerocercoids were invariably more numerous in the body cavity than in the muscles, and in spring and autumn than in summer or winter. B.G.P.

402—Mémoires du Musée Royal d'Histoire Naturelle de Belgique.

- a. CONINCK, L. A. de & SCHUURMANS STEKHOVEN, jr., J. H.—“The freeliving marine nemas of the Belgian Coast. II. With general remarks on the structure and the system of nemas.” No. 58, 163 pp. [1933.]

(a) Coninck and Schuurmans Stekhoven's monograph describes the nematode populations of ten types of marine habitat on the Belgian Coast. Forty-seven species are added to the already known Belgian fauna, of which 14 are new to science. New light is thrown on problems arising out of the relationships between certain genera and families, and systematic changes are made involving the formation of 4 new orders, 1 new family and 4 new genera. These are :—Orders Araeolaimoidea, Chromadoroidea, Enoploidea and Monhysteroidea; family Halaphanolaimidae of the Order Araeolaimoidea; and genera *Anaplectus*, syn. *Plectus* Bastian ex parte; *Camacolaimoides*, syn. *Camacolaimus* De Man ex parte; *Metaparoncholaimus*, syn. *Oncholaimus* Dujardin ex parte and *Parabathylaimus*, syn. *Bathylaimus* Cobb ex parte. M.J.T.

403—Mémoires de la Société Royale des Sciences de Bohême.

- a. NĚMEC, B.—“Über die Gallen von *Heterodera schachtii* auf der Zuckerrübe.” Year 1932, Paper 6, 1-14. [1933.]

(a) Němec describes the changes which occur in the roots of sugar beet in response to attack by *Heterodera schachtii*.

Syncytia are formed in the vascular bundles and cortex of the roots by the breakdown of cell walls. These syncytia occur in the neighbourhood of the head of the nematode but no perforations in the syncytial wall adjacent to the nematode have been found. Phloem bundles which appear to lack the usual conductive function of phloem appear around the syncytium when this is formed in the main root. The author concludes that the syncytia function in the same manner as nectaries in that they secrete the foodstuffs necessary for the development and growth of the nematode. M.J.T.

404—Memorandum. Agricultural Institute, Kirton.

- a. ANON.—“Memorandum on eelworm (*Heterodera schachtii*) and potato sickness.” 6 pp. [1933.]

(a) An account is given of the economic aspects of “potato sickness” and *Heterodera schachtii*.

The life cycle and some of the more important physiological characteristics are dealt with and the relative importance of the eelworm as a factor in the disease is discussed. Researches still in progress, designed to control the disease by the elimination of eelworm from infected land by the use of grasses, are described. The importance of crop rotations more especially on eelworm-infected land is emphasized.

M.J.T.

405—Memorias do Instituto Oswaldo Cruz.

- a. LUTZ, A.—“Notas sobre Dicurancercarias brasileiras.” xxvii (4), 349-376. [1933.]
 b. CRUZ, W. O.—“Da medulla ossea na Ancylostomose.” xxvii (4), 423-453. [1933.]

(a) In this account of the Brazilian Dicurancercariae (furcocercous cercariae) Lutz describes the following new species: *D. segmentata* from *Physa vivalis*, *D. cerneus* from *Ampullaria lineata*, *D. retroocellata* from *Semisinus spica*, *D. maritima* from *Anomalocardia brasiliana*, *D. brevicorpus* from *Lymnaea peregrina*, *D. ancyliua* from *Ancylus moricardi*, *D. problematica* from *Physa rivalis*, *D. spirochorde* from *Spirulina* spp., *D. phanerochorde* from *Ampullaria* sp., *D. crassispira* from a bivalve, *D. zygochorde*, and *D. mediohyalina* from *Semisinus spica*. Existing species are also described. [In the German translation *D. conchicula* is given as n. sp.; this name is spelt *conchicola* in the Portuguese section.]

B.G.P.

(b) Macroscopical examination of the marrow from the diaphysis of the femur in 24 fatal cases of uncomplicated hookworm disease, at ages ranging from 3 to 68 years, constantly revealed a uniform red colouration. The microscopical appearance was characterized by an intense regeneration of an erythroblast-myelocytic type. W. O. Cruz believes that hookworm anaemia is caused by a lack of iron.

R.T.L.

406—Minnesota Medicine.

- a. RILEY, W. A.—“Reservoirs of echinococcus in Minnesota.” xvi (12), 744-745. [1933.]

(a) Although hydatid is widespread in the United States the adult *Taenia echinococcus* has only been recorded once from dogs. This led Riley to seek a further definitive host. Adult *T. echinococcus* were obtained from two out of three timber wolves from Cook County.

R.T.L.

407—Mitteilungen der Deutschen Landwirtschaftsgesellschaft.

- a. GOFFART, H.—“Praktische Ergebnisse der neueren Forschungen über den Rüben- und Hafer nematoden.” XLVIII (47), 1029-1030. [1933.]

(a) Goffart describes and discusses the relative values of practical means of controlling the beet and oat strains of *Heterodera schachtii*.

Chemical treatments by which the larvae are induced to hatch from the cysts and are then destroyed, *e.g.*, applications of chloride of lime, are not satisfactory unless combined with rotation with immune crops. In the case of the beet strain good results can be obtained by following winter barley with leguminous crops which are ploughed in at the end of the season, this enriches the soil and retards nematode attack on the subsequent crop of beet. The cultivation of lucerne for 4 or more years completely eliminates the nematode in the absence of susceptible weeds. The introduction of fallow crops into the rotation is the best means of controlling the oat strain. Of these, beet is the best but potatoes are useful and buckwheat may be substituted. When cereals are grown winter sowing is preferable to spring sowing and the land should be lightly harrowed and rolled. No varieties of oats are immune to attack.

M.J.T.

408—Mitteilungen der Gesellschaft für Vorratsschutz.

- a. GOFFART, H.—“Über Nematoden an Nahrungsmitteln und Abfallprodukten. aus der Lebensmittelindustrie.” IX (1), 5-7. [1933.]

(a) Goffart gives a general account of the nematodes which occur in foodstuffs. Animal and plant parasites and semi-parasitic forms are discussed.

M.J.T.

409—Mitteilungen aus dem Pathologischen Institut der Medizinischen Fakultät.

- a. SUGIURA, S.—“Studies on the prevention of Schistosomiasis japonica.” No. 29, [Reprint 2 pp.] [1933.]
 b. SUGIURA, S.—“Studies on biology of *Oncomelania nosophora* (Robson), an intermediate host of *Schistosomum japonicum*.” No. 31, [Reprint 18 pp.] [1933.]

(a) In the control of *S. japonicum* liming is less successful in the Yamanashi Prefecture than in the Katayama district. The use of trained ducks and dredging of the rivulets and ditches is advocated. The ducks should, however, be raised on water not on land for they must become accustomed to diving for *Oncomelania nosophora*. As the spawning period of the snails is short dredging at the proper time will limit their spread.

R.T.L.

(b) *Oncomelania nosophora* is amphibious and highly resistant to desiccation. These molluscs live in brooks and irrigation ditches and only where water current is slow. They migrate very short distances and none beyond six metres. Hibernating in winter they lay eggs singly from the middle of May to the end of July. The life span is about five years. The reaction of the snails to water, soil, temperature, light and chemicals is discussed.

R.T.L.

410—Nachrichtenblatt für den Deutschen Pflanzenschutzdienst.

- a. GOFFART, H.—“Nematodenforschung und Pflanzenschutzgesetzgebung.” XIII (12), p. 105. [1933.]

(a) Goffart discusses the means by which plant-parasitic nematodes are distributed from country to country, and summarizes the recommendations for nematode control advocated by the American Phytopathological Society,

New Orleans [see Phytopathology, Vol. XXII, pp. 921-922 (1932)]. As an example of the measures which can be taken to prevent the introduction of plant diseases, regulations in force in Sweden, Norway, Denmark, Esthonia, Poland and Italy to ensure against the introduction of the potato strain of *Heterodera schachtii* are mentioned.

M.J.T.

411—Nederlandsch-Indische Bladen voor Diergeneeskunde en Dierenteelt.

- a. MEIJER, W. C. P.—“Over spontane en experimenteele trichinosis bij de kat.” XLV (6), 544-546. [1933.]
- b. NOTO-SOEDIRO, R.—“Een strongyloides-soort bij een haan.” XLV (6) 547-550. [1933.]

(a) Meijer reports on finding *Trichinella* larvae in the muscles of a domestic cat at Taroetong, Java, and on an experimental infection produced by feeding an infected rat to a cat which showed a marked haemorrhagic diarrhoea after 24 hours. Carcasses of infected cats which are not buried represent a dangerous source of infection.

H.M.

(b) In a cock which had shown paralysis and diarrhoea and at autopsy had a marked haemorrhagic enteritis, the author found many specimens of *Strongyloides* which he considers to be identical with *S. papillosus* [not knowing of *S. avium* Cram, 1929 and *S. oswaldoi* Travassos, 1930 which have been described from the fowl].

H.M.

412—Okayama-Igakkai-Zasshi.

- a. SAITO, Y.—“Beitrag zum Kohienhydratstoffwechsel bei Ankylostomiaden.” XLV (11), [in Japanese: German summary p. 2709.] [1933.]

(a) As a result of estimating the blood sugar of ancylostomiasis cases, before and after feeding 20 gm. grape sugar in the morning on an empty stomach, Saito finds that such cases show a hyperglycaemia which is not always proportional to the degree of anemia present.

B.G.P.

413—Orvosi Hetilap.

- a. LÖRINCZ, F.—“Emberben észlelt dicrocoeliasis dendritica esetek Magyarországon.” [Two cases of dicrocoeliasis dendritica in human beings in Hungary.] LXXVII (23), 488-491. [1933.]

(a) Lörincz presents two cases of *Dicrocoelium dendriticum* in man, in Hungary, the diagnosis being controlled with respect to the possible ingestion of infested liver. The opportunity is taken to describe the parasite and to discuss recent work on its life-history.

B.G.P.

414—Peking Natural History Bulletin.

- a. HSÜ, H. F.—“A new nematode, *Anisakis alata*, from the walrus.” VIII (1), 59-62. [1933.]
- b. HSÜ, H. F.—“On some species of parasitic nematodes from fishes in China.” VIII (2), 147-154. [1933.]
- c. HSÜ, H. F. & HOEPPLI, R.—“On some parasitic nematodes collected in Amoy.” VIII (2), 155-168. [1933.]

(a) Hsü describes a heterocheilid ascaroid from the walrus. The specimens agree quite closely with *Anisakis rosmari* Baylis, although there are small differences in the size and arrangement of the postanal papillae. Pending actual comparison of specimens of the two forms, the name *Anisakis alata* n. sp. is tentatively proposed for this form. E.M.S.

(b) Hsü describes and figures *Contracaecum amoyensis* n. sp. (near *C. fabri*, *C. trichiuri* and *C. cornutum*) with an exceptionally long oesophageal appendix, and *Rhabdochona opienensis* n. sp. (near *R. paski*, *R. elegans*, *R. macrolaima* and *R. escadilla*). He finds also larval specimens of *Contracaecum* spp. in the stomach and mesentery of several varieties of fish, and a number of immature Anisakinae in various fishes which were insufficiently developed for a generic determination, but whose observable characters he tabulates. E.M.S.

(c) Hsü and Hoeppli describe the following new species:—*Stenurus auditivus* n. sp., from *Neomeris phocoenoides*, *Cosmocercella neveri* n. sp. from *Rana spinosa* and *Anisakis alexandri* n. sp. (near *A. physeteris*) from *Sotalia sinensis*. Measurements are given also of the following:—*Amphibiophilus* sp., probably young *A. acanthocirratus* Skrjabin 1916, from *Rana limnocharis*, *Pharyngodon laevicauda* Seurat 1914 from *Hemidactylus bowringi*, *Acuaria longicauda* Hsü & Hoeppli 1931, from *Pica pica sericea* and *Aplectana macintoshii* (Stewart 1914) from *Bufo melanostictus*. The differences between the genera *Aplectana* and *Oxysomatium* are discussed and the need for a thorough study of all species is emphasized. E.M.S.

415—Philippine Journal of Science.

- a. TUBANGUI, M. A.—“Trematode parasites of Philippine vertebrates, VI. Descriptions of new species and classification.” LII (2), 167-197. [1933.]
- b. CHITWOOD, B. G. & CHITWOOD, M. B.—“Nematodes parasitic in Philippine cockroaches.” LII (4), 381-393. [1933.]

(a) Tubangui gives a valuable systematic list of trematode parasites so far reported from Philippine vertebrates and contributes detailed descriptions of 14 new species, viz., *Diplodiscus amphichrus*, *Nephrostomum bicolanum*, *Acanthoparyphium ochthodromi*, *Cercorchis cyclemidis*, *Paradistomum paloensis*, *Styphlodora renalis*, *Clinostomum dalagi*, *C. pseudoheterostomum*, *Haplorchis anguillarum*, *Scaphanocephalus adamsi*, *Austroilharzia bayensis*, *Neodiplostomum aluonis*, *Apharyngostrigea garciai* and *Tetracotyle bicolandiae*. R.T.L.

(b) Chitwood and Chitwood describe 5 species of nematodes from *Panesthia javanica*, a cockroach native to the Philippines. They are: *Blattophila sphaerolaima* var. *javanica* n. var., *Aorurus philippinensis* n. sp., *Thelastoma palmettum* n. sp., *Leidynema nocalum* n. sp. and *Leidynemella paracraniifera* gen. et sp. n. The description, by the late Dr. N. A. Cobb, of *Leidynemella fusiformis* n. sp. from *Panesthia laevicollis* (?) is included after being edited by the editors. The writers also place *Oxyuris panesthiae* Galeb, 1878 into the new genus. A new key to the genera in the subfamily Thelastomatinae is appended because of changes necessary in the diagnoses of genera due to the discovery of the above new species. J.N.O.

416—Physiological Zoology.

- a. BEVELANDER, G.—“Response to light in the cercariae of *Bucephalus elegans*.” VI, 289-305. [1933.]
- b. BEVELANDER, G.—“The relation between temperature and frequency of contraction in the tail-furcae of *Bucephalus elegans*.” VI, 509-520. [1933.]

(a) Bevelander has studied the behaviour of *Bucephalus elegans* cercariae with special reference to the quantitative relation between stimulation and response to light. This response is a “shock” reaction. The reaction-time varies inversely both with the intensity of light and the temperature. The Bunsen-Roscoe Law does not hold good. R.T.L.

(b) Working with *Bucephalus elegans* Bevelander finds that temperature affects very markedly the frequency of contraction of the tail-furcae of the cercariae. Contractions increase from 0 to 102 at 28°C. thereafter decreasing to 0 at 40°. If specimens are exposed to temperatures between 1° and 4° the frequency is completely reversible but at 40° not reversible or incompletely reversible. Changes in the viscosity, coagulation, permeability, and velocities of contraction of the longitudinal and circular muscles are affected differently at different temperatures. R.T.L.

417—Plant Disease Reporter.

- a. STEINER, G. & BUHRER, E. M.—“Recent observations on diseases caused by nematodes.” XVII (14), 172-173. [1933.]

(a) Steiner and Buhrer record a number of nematode findings:—*Anguillulina balsamophila* has been found in the leaves of a new host plant *Helianthus annuus*. *A. graminophila* has been found for the first time in the United States, parasitizing bent grass (*Agrostis tenuis*). A new host for *A. dipsaci*, viz., *Phlox subulata*, is recorded and *Sprekelia formosissiana* bulbs from Scotland have been found to be infected by the same nematode. Thirteen new hosts for *Heterodera marioni* are listed:—*Sansevieria zeylanica* var. *laurentii*, *Ginkgo biloba*, *Solanum capsicastrum*, *Delphinium sericea*, *Browallia viscosa*, *Convolvulus japonicus*, *Cuphea platycentra*, *Iresine lindeni*, *Peristrophe angustifolia*, *Phlox drummondii*, *Torenia fournieri* and *Verbena luminosa*. *Anguillulina pratensis* has been found in lesions in Irish potatoes from S. Carolina and in two cases *Paraphelenchus pseudoparietinus* has been found in stems of *Xanthium* sp., while ginger roots from China have been found to be infected by *Aphelenchoides tenuicaudatus*. Finally the nomenclature of the genus *Anguillulina*, syn. *Tylenchus* is discussed. M.J.T.

418—Presse Médicale.

- a. RAMOND, L.—“Une épilepsie peu banale.” XLI (34), 697-698. [1933.]
- b. NÚÑEZ, J. OUTEIRIÑO & LÓPEZ, M. CALVELO.—“Des recherches sur la prétendue spécificité de la réaction de Weinberg dans le diagnostic de l'échinococcose.” XLI (87), 1684-1688. [1933.]

(a) Ramond describes a rather unusual case in which a 35 years old French woman showed symptoms of what appeared to be Jacksonian epilepsy, the cause of which remained obscure for some little time. Eventually the cause was traced to a multiple infection with *Cysticercus cellulosae*, one larva

being excised from the neck and two from the back. It was not definitely ascertained whether the infection was by accidental contamination of food or by auto-infection. J.N.O.

(b) Núñez and López are of the opinion that Weinberg's reaction is not specific for hydatid but is a group reaction. Sera obtained from carriers of different taenias or their embryos or from animals immunized by the parenteral administration of protein from taenias give a positive complement fixation reaction with extract of either taenia or hydatid. P.A.C.

419—Proceedings of the Imperial Academy (of Japan).

- a. KABURAKI, T. & IMAMURA, S.—“Descriptions of two new soil nemas in the Nikko district.” IX (3), 134-136. [1933.]
- b. KABURAKI, T. & IYATOMI, K.—“Notes on sex in *Amphimermis zuimushi* Kab. et Im.” IX (7), 333-336. [1933.]
- c. SONODA, T.—“Einfluss des Ikterus auf die Entwicklung von *Schistosoma japonicum* im Wirtskörper.” IX (8), 453-456. [1933.]

(a) Kaburaki and Imamura describe and figure two new species of the genus *Tylencholaimus* and list thirty-five other species of soil inhabiting nematodes found in the Nikko district. *T. nikkoensis* n. sp. found on the roots of moss is easily distinguishable from other species of the genus by the possession of a short conical tail with rounded terminus curved ventrally and bearing a single dorsal papilla. *T. kirifuri* n. sp. found in forest soil is characterized by a large number of preanal papillae in the male. M.J.T.

(b) Kaburaki and Iyatomi have carried out further investigations on *Amphimermis zuimushi*, a nematode parasitizing the rice borer, *Chilo simplex* [see Helm. Abs., Vol. I, No. 250a]. Of 875 insects examined 71.2 per cent. harboured worms. There is a tendency for males to complete their parasitic development in a shorter period than that for females, while the sex ratio of the parasite is nearly 1 female to 7 males. A tabular statement shows that, out of 285 infected rice borers, 80 harboured a single worm all the parasites being females. But where the number of worms per host ranged from 2 to 36 a mixture of both sexes occurred with a tendency for one or the other sex to predominate. When the number of nematodes per host was 39 or more they developed into males exclusively. Intersexual females, the degree of intersexuality being indefinite, occasionally occurred in cases where the number of parasites per host was 1 to 24. Intersexual males were not found but males entirely destitute of spicule were encountered especially when more than 30 parasites per host were recorded. J.N.O.

(c) Sonoda has investigated infestation by *Schistosoma japonicum* in rabbits in which icterus had been artificially induced by blocking the bile duct.

He finds that the time taken by cercariae to penetrate the skin is increased and the consequent inflammatory reaction delayed, both in proportion to the duration of icterus. After 10 days of icterus many cercariae perish in the skin; those that successfully penetrate fail to mature and are to be found, dead, within the lung capillaries. Thus the blood is toxic to *S. japonicum* in cases of icterus. B.G.P.

420—Proceedings of the Royal Society of Medicine.

- a. LEIPER, R. T.—“Helminthology: a chapter in comparative medicine.” xxvii (2), 127-134. [1933.]
- b. BUCKLEY, J. J. C.—“Some observations on two West Indian parasites of man.” xxvii (2), 134-135. [1933.]

(a) In his Presidential address to the Comparative Medicine section of the Royal Society of Medicine, Leiper opened with a plea for that integration of human and veterinary medicine which had been urged by Sir Clifford Allbutt and Dr. Bradley. He went on to show how in helminthology, principles of comparative anatomy had led to the elucidation of various fundamentally important helminthic life histories. The comparative method was essential to zoological classification, but here the existence of biological races was a complicating factor. Attention was drawn to the prevalence in nature of a “normal,” non-pathogenic parasitism, a mutual adjustment between parasite and host to which certain types of immunity-response formed a contribution on the part of the host. Disturbance of that adjustment, by the aggregation of hosts, by factors favouring the spread of intermediate hosts, by the accidental presence of parasites in unusual hosts or locations, leads on to pathological parasitism.

B.G.P.

(b) This preliminary note reports the occurrence of *Syngamus nasicola* v. Linstow as prevalent in sheep, cattle and goats in Trinidad. Buckley concludes that *S. kingi* once reported from man is identical with this form. The life cycle of *Filaria ozzardi* is completed in St. Vincent in sandflies of the genus *Culicoides*.

R.T.L.

421—Proceedings of the Zoological Society of London.

- a. REES, F. G.—“On the anatomy of the trematode *Hypoderaeum conoideum* Bloch, 1782, together with attempts at elucidating the life-cycles of two other digenetic trematodes.” Part II, 817-826. [1933.]

(a) Rees describes *Hypoderaeum conoideum* in detail, with an account of the experimental infection of ducklings with cysts from *Lymnaea pereger* from S. Wales. The number of circumoral spines is abnormal, and corresponds with that of *Cercaria* Z Rees (1932). The encysted metacercaria of *Cercaria cambrensis* I. Wright has been experimentally obtained in tadpoles of *Rana temporaria*, and the cysts, with those of *Cercaria limbfifera* Seifert from *Lymnaea*, have been fed to ducklings, with negative results. Two new hosts, *Lymnaea pereger* and *L. palustris* have been recorded for *Cercaria pygocytophora* Brown (1931).

E.M.S.

422—Protozoa.

- a. SCHOPFER, W. H.—“Recherches physico-chimiques sur le milieu intérieur de quelques parasites.” xviii, 628-631. [1933.]

(a) Measurements of depression of freezing point show that the internal fluid of intestinal nematodes is slightly hypotonic to the surrounding fluid of the host. More detailed work with *Ascaris megalocephala* indicates that the species is poecilo-osmotic. Experiments on the larval form of the cestode, *Cysticercus tenuicollis* show that the membrane of this parasite is selectively permeable, whereas the surrounding membrane, produced by the host, is freely permeable to the chemical elements of blood.

R.H.H.

423—Psyche, Cambridge, Mass.

- a. WHEELER, W. M.—“*Mermis* parasitism in some Australian and Mexican ants.” XI (1), 20-31. [1933.]

(a) Wheeler describes the effect of *Mermis* parasitism in 4 species of ants. He shows that the nematodes, which enter the body cavity of the ant larva, probably undergo little development till the larva is well advanced, but the disturbance they set up in the prepupal and pupal development of the host suffices to bring about a considerable diminution in the size of the head and thorax and a simultaneous greater differentiation of the latter region in the imago. The host may be said to represent a pathological “intercaste” produced by *Mermis* infestation. The author describes the external appearance of parasitized individuals of *Myrmecia forficata* var. *rubra* Forel, *Camponotus* (*Tanaemyrmex*) *consobrinus* Erichson and *C. (Myrmophyma) claripes* subsp. *piperatus* subsp. nov. all from Australia and *C. (Myrmothrix) abdominalis* subsp. *stercorarius* Forel from Mexico. A contrast with normal individuals is made. J.N.O.

424—Pubblicazioni della Stazione Zoologica di Napoli.

- a. GUBERLET, J. E.—“Notes on some Onchocotylinæ from Naples with a description of a new species.” XII (3), 323-336. [1933.]

(a) Guberlet has surveyed the ecto-parasitic trematode fauna of a number of Elasmobranch fishes at Naples, and records the following species: *Onchocotyle canicula* Cerf. from *Scyllium stellare* (new host record) and *Sc. canicula*; *Squalonchocotyle vulgaris* (Cerf.) from *Mustelis laevis*; and *Squalonchocotyle catenulata* n. sp., also from *Mustelis laevis*, readily distinguished by the occurrence of long strings of eggs joined together by their polar filaments. The literature of the group is reviewed and Poche's classification accepted. E.M.S.

425—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. ASHFORD, K., PAYNE, G. C. & PAYNE, F.—“The larval phase of uncinariasis.” IX (2), 97-134. [1933.]
b. FAUST, E. C.—“Studies on Schistosomiasis mansoni in Puerto Rico. I. The history of schistosomiasis in Puerto Rico.” IX (2), 154-161. [1933.]

(a) Ashford and the Paynes give here a more extended account of the larval phase of hookworm disease discussed in abbreviated form elsewhere. [See Helm. Abs., Vol. II, No. 260a.] B.G.P.

(b) Faust states that *Schistosoma mansoni* disease is important in Porto Rico. He plans to publish the results of an intensive investigation covering the epidemiology, biology, host reactions and prophylaxis of the disease. This first article deals with the historical side from the first discovery of the disease in the island in 1904. B.G.P.

426—Puutarha.

- a. VAPPULA, N. A.—“Ankeröisista ja niiden merkityksestä tuholaisina.” [On the nematodes and their importance as pests.] XXXVI (12), 339-343. [1933.]

(a) A brief account is given of the economically more important species of *Tylenchus*, *Aphelenchus* and *Heterodera*. The only known injurious

species in Finland include *Tylenchus hordei* Schöyen, which attacks barley in northern Finland; *Aphelenchus ritzema-bosi* Schwartz, on chrysanthemums and *A. olesistus* Ritz. Bos, on begonia, sinningia and ferns in glass-houses; and *Heterodera radiculicola* Greef on glasshouse tomatoes and cucumbers.

N.A.V.

427—Records of the Indian Museum.

- a. DATTA, M. N.—“Acanthocephala from Northern India. II. A new species of *Centrorhynchus* (*C. maryasis*, sp. nov.) from a Himalayan bird, *Urocissa melanocephala* [*melanocephala*] *occipitalis* (Blyth).” xxxv (3), 325-330. [1933.]

(a) Datta gives morphological descriptions and a table of measurements of males and females of *Centrorhynchus maryasis* n. sp. from the intestine of *Urocissa melanocephala occipitalis*. The birds were shot in the Kumaon Hills near Bhowali. The main points of difference, which consist in size of body in both sexes, numbers of longitudinal rows of hooks and of hooks in each row on the proboscis, between the new and other related species are shown in a chart.

J.N.O.

428—Recueil de Médecine Vétérinaire.

- a. FROGER.—“Le triformol-glycérine-allylique dans le traitement de la bronchite vermineuse des Bovidés.” cix (12), 911. [1933.]

(a) Froger finds that intratracheal injections of allylic triformol glycerine are efficacious against *Dictyocaulus* in cattle. The dose is from 5 to 10 cc. and is repeated in from 5 to 7 days. Preliminary trials in sheep are also promising. The solution is best used tepid and isotonic, with a fine needle.

B.G.P.

429—Report of the Chief of the Bureau of Animal Industry, United States Department of Agriculture, 1933.

- a. MOHLER, J. R.—“Zoological division.” pp. 42-47. [1933.]

(a) Mohler records, *inter alia*, the investigations conducted in the Zoological Division under the direction of Dr. M. C. Hall.

Two species of *Cylicocyclus* encysted beneath the mucosa of colon and caecum in horses were identified. Live steam at 15 lb. pressure destroyed all strongyle eggs and larvae in horse manure in about 30 minutes. The ability of horse strongyle larvae to migrate upwards was nil in clay soil but from a depth of 5 ins. in sandy loam. *Cysticercus bovis* in beef remained viable in a cooler after 26 days but none were alive after 31 days. The snails *Pseudosuccinea columella* and *Fossaria modicella rustica* were found to be suitable intermediate hosts for *Fasciola hepatica* and, as well as *Fossaria modicella*, for *Fascioloides magna*. Results of experiments show that losses from swine kidney worms can be materially reduced by strict attention to sanitation. Infective *S. dentatus* larvae gain entrance through intact skin when they have adequate traction. Studies to determine the relation between dietary deficiency and susceptibility to parasitism showed that pigs, on a diet deficient in vitamin A, failed to become infected from human *Ascaris* eggs but showed moderate to heavy infestations from swine *Ascaris* eggs. The dung beetle, *Ataenius cognatus*, was discovered as a vector of

the poultry cestode, *Hymenolepis cantaniana*, while *Onthophagus janus* and *O. pennsylvanicus* were reported as additional vectors of *H. carioca*. *Dracunculus medinensis* was reported from fox, raccoon and mink in the U.S.A. Dogs, 3 to 4 years old, receiving a normal diet and resistant to infestation with *Toxocara canis* were infected after having received a vitamin A deficient diet. "Fouadin" given intramuscularly destroyed all embryos and some or all adults of *Dirofilaria immitis*. All the known vegetable taenicides and various extracts of them were tested against chicken tapeworms but none were dependably effective in removing scolices. Normal butylidene chloride was 98.4 per cent. effective, given in doses of 2 cc. or more per adult bird, against *Ascaridia lineata* but only 4.7 per cent. effective against heterakids. For colts, 4 to 7 months old, the same drug in a dose of 0.2 cc. per kg. body weight was effective in expelling ascarids. Carbon bisulphide in a dose of 8 to 10 cc. per 100 lb. body weight destroyed *Hyostrogylus rubidus* and *Ascarops strongylina*. In smaller doses it was only partially effective. A 1 per cent. solution of copper sulphate containing 0.75 per cent. of 40 per cent. nicotine sulphate was very effective in removing the common sheep stomach worm and partially effective against 6 other nematode species; against *Moniezia* spp. it was unsatisfactory. J.N.O.

430—Report. New York State Veterinary College, Cornell University.

- a. GATES, D. W.—"A preliminary survey of the cestodes and nematodes in parts of New York State." Year 1931-32, Legislative Document (1933) No. 18, 59-60. [1933.]
- b. CRANE, D. B.—"Some studies on the use of rotenone as a canine insecticide." Year 1931-32, Legislative Document (1933) No. 18, 86-120. [1933.]

(a) From 120 fowls sent for examination at Cornell University, Gates collected the following cestodes:—*Davainea proglottina* on 52 occasions, *Raillietina cesticillus* 40 times, *R. echinobothrida* twice, *Hymenolepis carioca* 23 times and *H. cantaniana* twice. The nematodes found were:—*Ascaridia lineata* 74 times, *Capillaria* spp. 23 times, *Capillaria annulata* twice, *C. contorta* once and *Tetrameres americana* once. From a domestic turkey *Metroliaesthes lucida* was collected once. R.T.L.

(b) Rotenone, an important insecticide constituent of *Derris* root first isolated by Nagai in 1902, has been tested against internal parasites of dogs by Crane. It was unsatisfactory in the treatment of tapeworm but on a small number of infected dogs it appeared to be efficacious against *Ancylostoma caninum*, Toxascarids and Belascarids and whipworm. R.T.L.

431—Revista de la Asociación Médica Argentina.

- a. PAVIA, J. L. & DURANDO, S. A.—"Cisticercos sub-retinianos." XLVII, 3586-3590. [1933.]

(a) Pavia and Durando describe the case of a woman 31 years old who had developed *Cysticercus cellulosae* behind the retina of the right eye. They were able to trace the changes that occurred in the vision as the cyst grew. P.A.C.

432—Revista de Biologia e Hygiene.

- a. ARTIGAS, P. T. & PACHECO, G.—“A new species of filaria from *Myocastor coypus*. *Dipetalonema travassosi* n. sp. (Nematoda: Filarioidea).” IV (1), 23-27. [1933.]
- b. PEREIRA, C. & VAZ, Z.—“Nota sobre a presença de *Paraspidodera uncinata*, em cobayas de São Paulo.” IV (2), 52-55. [1933.]
- c. PEREIRA, C. & VAZ, Z.—“*Carinema carinii*, n. gen. e n. sp. de filarídeo parasito do corrução (*Xanthornus* sp.) passaro fringilliformes.” IV (2), 56-58. [1933.]
- d. PEREIRA, C. & VAZ, Z.—“Nematoides parasitos de *Cynolebias bellotti* (Pisces: Cyprinodonta).” IV (2), 59-61. [1933.]
- e. ARTIGAS, P. & PACHECO, G.—“*Longistriata maldonadoi* n. sp. (Nematoda) *Trichostrongylidae* parasite of *Myocastor coypus*.” IV (2), 68-71. [1933.]

(a) Artigas and Pacheco give morphological descriptions of the male and female of *Dipetalonema travassosi* n. sp. from the peritoneal cavity of *Myocastor coypus*. The microfilaria, found in the blood of 8 out of 35 animals examined, is also described. The authors discuss their reasons for the inclusion of the parasite in *Dipetalonema* rather than in *Acanthocheilonema*.

J.N.O.

(b) Pereira and Vaz record the constant presence of the oxyurid nematode, *Paraspidodera uncinata* (Rud., 1819), in the large intestine of guinea-pigs postmortem at St. Paul, Brazil. They redescribe the adults of both sexes and give dimensions together with 9 line drawings.

T.G.

(c) A filariid worm from the body-cavity of the Fringilliform bird, *Xanthornus* sp., is placed by Pereira and Vaz in a new genus *Carinema* as *C. carinii* n. sp. The new genus belongs to the subfamily Aproctinae and is closely related to *Chandlerella* of Yorke and Maplestone, 1926. A brief description of the adults is given together with dimensions and there are 5 line drawings.

T.G.

(d) Pereira and Vaz describe and figure a nematode parasite obtained from the stomach of a Cyprinodont fish, *Cynolebias bellotti*, under the name of *Hedruris iheringi* n. sp.

T.G.

(e) This is a translation into English of the same authors' French paper in *C. R. Soc. Biol.*, 1933, CXII (10), 1004-1006, see *Helm. Abs.*, Vol. II, No. 13d.

J.N.O.

433—Revista de Medicina Veterinaria. Bogotá.

- a. REYES, R. V.—“El parasitismo en la Sabana de Bogotá.” V (42/43), 663-680. [1933.]

(a) Reyes gives a list of the helminths and ectoparasites which he has met with in domestic animals in Colombia, distinguishing those not hitherto reported from that country. He then presents a series of brief case-reports on animals treated by him for these infections.

B.G.P.

434—Revista Medico-Cirurgica do Brazil.

- a. VAZ, Z.—“Novo Cosmocercideo de *Leptodactylus pentadactylus*.” XLI (1), 5-7. [1933.]
- b. PEREIRA, C.—“Novo nematoide parasito de psitacideos.” XLI (1), 7-10. [1933.]
- c. VAZ, Z.—“*Aspidodera Reisi* n. sp. parasito di *Mormosa murina* (Didelphydae).” XLI (2), 56-58. [1933.]

(a) Vaz gives an illustrated description of a new parasitic nematode obtained from the large intestine of *Leptodactylus pentadactylus*, the Brazilian Green Bladder Frog. It is placed in the genus *Schrankia* Travassos, 1925 and is named *S. larvata* n. sp. T.G.

(b) In the course of post-mortem examinations of South American parakeets, Pereira found examples of a new species of *Ascaridia* which he names *A. sergiomeirai* n. sp. He gives an account of the morphology of the adults of both sexes and differentiates them from *A. hermaphrodita*. There are 10 line drawings. The new species occurred in the small intestine of the two following parakeets:—*Brotogeris tui* (Gm.) and *Psittacula passerina* (L.). T.G.

(c) Under the name *Aspidodera reisi* n. sp., Vaz describes a nematode parasite obtained from the large intestine of the Didelphid Marsupial, *Mormosa murina* L. An account of the morphology is given with dimensions and there are 4 line drawings. T.G.

435—Revista da Sociedade Paulista de Medicina Veterinaria.

- a. ARTIGAS, P.—“Sobre o parasitismo do *Saimiris sciureus* por um Gongylonema (*G. saimirisi* n. sp.) e as possibilidades de infestação humana.” III (3/4), 83-88. [1933.]

(a) Artigas presents a morphological description of *Gongylonema saimirisi* n. sp. found in the oesophagus of *Saimiris sciureus*, a small species of monkey found in captivity and frequently coming into close contact with humans. Owing to the fact that records exist of infections by *Gongylonema* in non-human mammalian hosts as well as in man the author puts forward some considerations on the possibility of human infection with this new species. J.N.O.

436—Revue de Microbiologie d'Épidémiologie et de Parasitologie.

- a. SCHMELEWA, A.—“Die Anwendung der duodenalen Sonde bei der Behandlung der Enterobiosis.” XII (2), 151-155. [In Russian: German summary pp. 155-156.] [1933.]

(a) Schmelewa has treated oxyuris with small doses of santonin thrice daily after meals, for 4 days, with a saline aperient on the 2nd and 4th day. This treatment in 19 cases resulted in the evacuation of from 2 to 12 gravid females. In 22 further cases the treatment was elaborated by intestinal lavage, on the 3rd day, by duodenal sound, with 5 litres of physiological saline. This produced from 10 to 100 times the number of worms, mainly young females, only 1 in 10 being males. B.G.P.

437—Revue Neurologique.

- a. GUILLAIN, G., BERTRAND, I. & THUREL, R.—“Étude anatomique et clinique d'une méningite basilaire et spinale à *Cysticercus racemosus*.” Year 1933, II (1), 114-125. [1933.]

(a) Guillain, Bertrand and Thurel record the clinical symptoms of basilar and spinal meningitis due to *Cysticercus racemosus* (*cellulosae*) in a 61 year old patient who had been under observation for some months. The man died before a surgical exploration could be effected and an histological examination, made after death, showed the parasite vesicles partly

destroyed by sclerous reaction and partly effaced by a process of necrosis. The authors point out that without such an examination a diagnosis of true sclero-gummosus meningitis of a syphilitic nature might have been made.

J.N.O.

438—Revue de Pathologie Comparée et d'Hygiène Générale.

- a. LEPINAY, L.—“Un nouveau taenifuge.” XXXIII (439), 545-547. [1933.]

(a) Lepinay has found that a preparation containing oxide of tin is a useful vermifuge in the case of dogs affected with tapeworm and has used it in a human case.

R.T.L.

439—Revue Suisse de Zoologie.

- a. ZSCHOKKE, F.—“Die Parasitenfauna der Gattung *Coregonus*.” XL (4), 559-634. [1933.]

(a) Zschokke starts with a discussion of host specificity among fish parasites, where certain species of parasite are confined to certain families of fish. The distribution of the parasites of *Coregonus* corresponds roughly with that of their host and the same parasites occur on examples of the host taken from localities far apart. A section then deals with the biology of the genus *Coregonus* a salmonid fish with marine and freshwater examples. Then follows a list of all the helminth parasites of *Coregonus* recorded under geographical regions. A check list of the parasites of *Coregonus* comprises:—16 spp. of Cestodes, 11 spp. of Trematodes, 7 spp. of Nematodes and 9 spp. of Acanthocephala, as well as Myxosporidia and Crustacea.

S.G.S.

440—Revue Vétérinaire et Journal de Médecine Vétérinaire et de Zootechnie.

- a. COUSI, D.—“La cysticerose bovine en Tunisie.” LXXXV, 121-130. [1933.]
 b. MAROTEL & VITU—“Troisième observation française de ladrerie ovine.” LXXXV, 321-333. [1933.]
 c. LIÈVRE, H.—“Cysticerose cardiaque bovine.” LXXXV, 373-376. [1933.]
 d. LETARD, E.—“Hérédité des maladies parasitaires. Ascaridiose prénatale.” LXXXV, 440-442. [1933.]
 e. GRANOULLIT.—“Résultats d'une enquête en Cochinchine sur la distomose et l'amphistomose des bovo-bubalins.” LXXXV, 502-510. [1933.]
 f. LIÈVRE, H.—“La cachéxie aqueuse algérienne.” LXXXV, 553-559. [1933.]

(a) Bovine cysticercosis has been frequently observed by Cousi in Soussse, Tunis. Immaturity of the intermediate host is an important factor. The different muscles of the body are variously affected; the heart in 84.37 per cent., the masseters in 51.2 per cent. and the tongue in 42.19 per cent. These organs should be carefully inspected therefore at the abattoir.

R.T.L.

(b) The finding of about 300 mostly dead or calcified cysticerci, particularly numerous in the heart and diaphragm and less so in the tongue and masseters, in a sheep's carcase has prompted Marotel and Vitu to review the question of measles in mutton. From an examination of the relevant literature they conclude that all specifically determined cases refer to *Cysticercus ovispariens* Maddox, 1873, the adult form of which, *Taenia ovis*, is found in the dog. They consider that measles in mutton is not due to the

cysticercus of *T. hydatigena*, which differs from all cysticerci described from sheep muscles in the number and dimensions of the rostellar hooks, but may be due to the cysticercus of *T. solium*, which can only be proved by experimental feedings, and consequently they advocate the seizure, by meat inspectors, of all measly mutton. [Readers may find the scientific terminology in this paper somewhat confusing as the authors consider the parasite ought to bear the same name whether it be in the larval or adult stage: e.g., the cysticercus of *Taenia solium* ought to be called *Cysticercus solius* (!) and not *C. cellulosae*, that of *T. hydatigena*, *C. hydatigenus* and not *C. tenuicollis*.] J.N.O.

(c) Lièvre points out that while pigs are usually heavily infected with *Cysticercus cellulosae* cattle are only lightly infected. These light infestations are easily overlooked with the result that the frequency of human infection is inversely proportional to the degree of infestation of the intermediate host. In France in every hundred cases of tapeworm infection only one is due to *T. solium*. Heavy infections of cattle do occur occasionally and are attributable to the swallowing of complete segments when human stools are eaten. Such a case is recorded in which the heart contained numerous cysticerci. R.T.L.

(d) Letard cites a case of prenatal infection with *Belascaris marginata* after giving a brief review of the investigations into the transmission of helminths by the mother to the foetus. Four French bulldogs were separated immediately after birth from their mother and adopted by a Chinese hairless dog already the possessor of 4 pups a few days old. 24 to 28 days after adoption the bulldogs became ill and expelled in their vomit and diarrhoeic faeces several worms including adult females with eggs. The fostermother's own pups were not infected. From these facts the author concludes that infection of the bulldogs was prenatal. J.N.O.

(e) A survey by Granouillit shows that lesions due to infections with *Amphistomum explanatum* and *Fasciola hepatica* are sufficiently serious to call for the confiscation of the liver in about 6 to 7 per cent. of the cattle slaughtered in abattoirs in Cochinchina. The amphistome has also been noted in pigs. R.T.L.

(f) Lièvre, in the course of a brief study of liver rot in Algeria, has found the disease widely distributed but varying greatly in severity. 5 to 6 per cent. of the sheep generally are infected while 15 to 18 per cent. of the cattle harbour *Fasciola hepatica*. The author shows that the difference in incidence of the parasite in these domesticated animals is due to the practice of grazing sheep on the higher ground and reserving the better valley pastures for cattle. He also mentions that the presence of liver fluke throughout Algeria, despite the hot climate there, may be accounted for by the resistance of the encysted cercariae to heat and desiccation which results in the survival of the trematode. *Dicrocoelium dendriticum* (*lanceatum*) does not appear to exist in the country. J.N.O.

441—Revue de Zoologie et de Botanique Africaines.

a. SCIACCHITANO, I.—“Su alcuni Gordii del Congo belga.” xxiv (1), 50-59. [1933.]

(a) Sciacchitano had sent to him, by the Director of the Belgian Congo Museum, 45 Gordiids, in the possession of that Museum, for examination.

Twelve species, 7 of which are new, were represented as follows :—*Chordodes capensis* Cam., *C. siamensis* Cam., *C. madagascariensis* Cam., *C. ferox* Cam., *C. africanus* n. sp., *C. congolensis* n. sp., *C. kolensis* n. sp., *C. ligasiensis* n. sp., *C. Schoutedeni* n. sp., *Gordius crispatus* n. sp., *G. rhomboidalis* n. sp. and *Parachordodes raphaelis* (Cam.). Curt descriptions of the new forms are given.

J.N.O.

442—Rivista di Coniglicoltura.

- a. BIDONE, C.—“Malattie parassitarie della pecora karakul.” v (2), 12, 17 & 18. [1933.]

(a) Bidone states that the two principal parasitic diseases of the Karakul sheep in Italy are liver-fluke and lungworm. He gives an elementary account of these parasites and their development.

B.G.P.

443—Rivista di Patologia Vegetale.

- a. LINDEGG, G.—“Anguillulosi della *Crassula lycopodioides*.” XXIII (3/4), 177-183. [1933.]

(a) On a plant of *Crassula lycopodioides*, which had become sickly and had discoloured foliage, Lindegg found root galls due to *Heterodera marioni* (*H. radicola*). He describes the external appearance of the galls, the anatomy of a cross section of one of them and gives measurements of the eggs and larvae. The paper ends with some general remarks on the parasitism of *H. marioni* and on control measures for the same. There are four text figures.

T.G.

444—Rozprawy Biologiczne.

- a. MATERNOWSKA, I.—“Odczyn śródskórny przy włośnicy u zwierząt i ludzi.” [La réaction intracutane dans la trichinose chez les animaux et les hommes.] XI, 93-126. [German summary: 125-126.] [1933.]

(a) Maternowska finds that the intradermal skin test is a certain means of diagnosing Trichinosis in man, guinea-pig, rabbit and pig, from 5 to 400 days after infection. The reaction is divided into two phases. The first which is predominant in early stages of the disease, shows an oedematous swelling which reaches its maximum in 9 hours : the second is characterized by an infiltration of lymphocytes, together with some eosinophiles and reaches its maximum in 24 to 28 hours and its end in 50 to 52 hours. This is the dominant phase in older infections. The reaction varies and depends on the age and intensity of the infection, the concentration of the antigen and on individual idiosyncrasies of the skin.

P.A.C.

445—Science.

- a. AUGUSTINE, D. L.—“Experimental trichinosis in chicks.” LXXVIII (2035), 608-609. [1933.]

(a) Augustine reports the finding of encysted larvae in the musculature of chicks fed on *Trichinella* larvae. They do not occur in sufficient numbers to be diagnosed by direct microscopic examination and it is necessary to resort to peptic digestion. A large proportion of the encysted larvae are dead when found and infection from chicks may be regarded as of doubtful occurrence.

T.W.M.C.

446—Science Reports of the Tôhoku Imperial University. Series 4: Biology.

- a. TORYU, Y.—“Contributions to the physiology of the ascaris. I. Glycogen content of the ascaris, *Ascaris megalocephala* Cloq.” VIII (1), 65-74. [1933.]

(a) Toryu finds that the glycogen content of *Ascaris megalocephala* is about 3.8 per cent. of whole body weight in females and about 2.9 per cent. in males. Glycogen is present in greatest amount in the non-contractile substance of the muscle cells of both males and females, and in the reproductive system of females only.

R.H.H.

447—Scientific Agriculture.

- a. NEWTON, W. & BOSHER, J. E.—“The tomato root knot disease.” XIII (9), 594-595. [1933.]

(a) Newton and Bosher found that a 1 per cent. formalin solution (0.4 per cent. formaldehyde solution) applied to soil infected with *Heterodera radiculicola* gave effective control of the nematode.

It is calculated that one gallon of commercial formalin will effectively sterilize 50 cubic feet of soil. At concentrations lower than 1 per cent. the formalin did not prevent infection, but immediately following treatment with 1 per cent. formalin tomato seed could be sown and the treatment appeared to stimulate growth of the seedlings.

M.J.T.

448—Scottish Naturalist.

- a. PARNELL, I. W. & CAMERON, T. W. M.—“Some observations on the ecology of Scottish herbivores and carnivores.” No. 203, pp. 139-145. [1933.]

(a) All the species of deer in Scotland carry many parasitic worms some of which are identical with those of sheep and cattle. Although several tapeworms occurred in foxes *Echinococcus granulosus* was not observed. Hookworms were limited to mid-Scotland. The parasitic fauna of the wild and the domesticated cat is identical. A species of taenia is the commonest parasite in the stoat and the weasel.

R.T.L.

449—Semana Médica.

- a. MARTÍNEZ, F. F.—“Parasitismo intestinal y jugo gástrico.” XL (37), 782-783. [1933.]

(a) Martínez finds, on the basis of 89 patients whose gastric juice was examined, that states of hyper- or hypochlorhydria cannot be correlated with presence or absence of parasites (helminths or protozoa or both).

B.G.P.

450—Sinensia. Contributions from the Metropolitan Museum of Natural History, Nanking.

- a. WU, H. W. & TANG, S. F.—“Notes on the Nematomorpha of China.” III (7), 173-178. [1933.]
b. WU, H. W.—“Helminthological notes. I.” IV (3), 51-59. [1933.]

(a) Wu and Tang describe 3 Gordiids from a small collection of Nematomorpha deposited as museum and laboratory specimens in Nanking, China. They are: *Chordodes Moutoni* Cam., *C. Wangi* n. sp., the description being based on one female, and *Gordius omensis* n. sp., of which both sexes have been studied. Locality records for all forms are mentioned. J.N.O.

(b) Wu deals with 3 nematodes from mammalian and bird hosts of Nanking. Measurements and morphological descriptions of males and females of *Passalurus assimilis* n. sp., from the caecum of a hare, *Lepus sinensis*, are given. It is contrasted with the closely related genotype, *P. ambiguus*. *Physaloptera clausa* Rud. is reported from the stomach of a hedgehog, *Erinaceus deabatus*. *Acuaria orientalis* n. sp. is described, with measurements of both sexes, from the stomach of a Great Bittern, *Botaurus stellaris orientalis*. The author considers the nematode belongs to the subgenus *Synhimantus* and differs from its near neighbours, *A. brevicaudata*, *A. recta* and *A. sagittata*, in the number and disposition of the caudal papillae. J.N.O.

451—Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin.

- a. VITZTHUM, H. GRAF.—“Zählebigkeit eines Nematoden.” 1932 (8/10), pp. 370-372. [1933.]
- b. NÖLLER, W. & ENIGK, K.—“Ein *Platynosomum* beim Steinhuhn.” 1932 (8/10), pp. 419-423. [1933.]
- c. NÖLLER, W. & ENIGK, K.—“Weitere Cercarienbefunde bei Landschnecken.” 1932 (8/10), pp. 424-437. [1933.]
- d. MÜLLER, F. R.—“Zur Verbreitung des Lanzettegels bei Wildkaninchen und Hasen.” 1932 (8/10), pp. 437-442. [1933.]
- e. ENIGK, K.—“*Leucochloridium paradoxum* in *Succinea oblonga*.” 1932 (8/10), pp. 442-444. [1933.]
- f. MÜLLER, F. R.—Beitrag zur Kenntnis der Labmagenparasiten des Kamels.” 1933 (4/7), 266-271. [1933.]
- g. ENIGK, K.—“Ein Beitrag zur Parasitenfauna des Kamels (*Camelus bactrianus*).” 1933 (4/7), 271-280. [1933.]

(a) Graf Vitzthum describes a series of events demonstrating the tenacity of life of a nematode. The worm, identified in the Berlin Museum as a larva of the Anisakidae, probably *Capsularia salaris* Gmelin, 1790, was retrieved from the muscles of a slice of cod, *Gadus morrhua*, which had been purchased from a fishmonger, cleaned, salted and immersed in vinegar for some time. Following this pickling the slice was plunged into boiling water and remained therein for 20 minutes. It was next removed to a plate, the flesh separated from skin and bones and allowed to cool and later the nematode was found in the drained-off liquor. The specimen became very active on transference into a salt solution and it remained alive for 11 days. The author points out that, in thermal springs, 53°C. is the temperature limit for life and that at 70°C. albumen coagulates and he maintains this fish parasite must have endured, for a longer or shorter period, a temperature of 100°C. J.N.O.

(b) Nöller and Enigk describe, with measurements, *Platynosomum alectoris* n. sp. from *Alectoris graeca saxatilis*. Fifteen specimens of the fluke were recovered from the gall bladder of the Greek Partridge which had been in the Berlin Zoological Gardens and probably originated from the

Balkans. Its nearest relative, from which it differs in the shape, size and disposition of the testes, size of cirrus sac and position of genital pore, is *P. acuminatum* Nicoll, 1915. The authors briefly discuss the relationship of members of the Dicrocoeliinae and have collected 46 references dealing with this subfamily. J.N.O.

(c) In their endeavour to elucidate the life-history of *Dicrocoelium dendriticum* [see Helm. Abs., Vol. 1, No. 262a], Nöller and Enigk report additional findings of cercariae in numerous land snails. They have established that, in a Lancet fluke district in Thuringia, *Cercaria vitrina* is present in *Zebrina detrita* (up to 20 per cent.), *Torquilla frumentum* (1-40 per cent.) and *Xerophila candidula* (1-10 per cent.). In a repeated feeding of *D. dendriticum* eggs to *Agriolimax agrestis* immature, unbranched sporocysts were recovered from 2 snails after 3½ and 4½ months respectively, but no mature larvae were found. One out of 345 snails collected around Stadtilm contained similar sporocysts. Several specimens of *Euomphalia strigella*, collected from the limestone mountains of Rüdersdorf, were negative but 2 out of 3 taken near Grossliebringen harboured *Cercaria vitrina*. 785 *Xerophila* (*Helicella*) *ericetorum*, the most common snail on sheep pastures in the Thuringian area, were also negative but 7 out of 1,665 individuals of *X. (H.) candidula* from Herrenberg near Gösselborn harboured *C. vitrina*. Examples of the last mentioned snail contained, moreover, 3 other kinds of trematode larvae: (a) blunt-tailed cercariae with a spine and sporocysts; (b) immature blunt-tailed cercariae without a spine; no sporocysts were traced; (c) divided sporocysts and cercariae, which are described.

Branched sporocysts and cercariae, briefly described, were encountered in *Eulota fruticum* from Thuringia, in *Cochlicopa lubrica* from near Berlin, in 1 out of 283 *Helicella vestalis* sent from Jaffa, Palestine, in 6 out of 18 *H. millepunctata* from central Persia and in 8 out of 58 *Euparypha pisana* from south Spain. These divided sporocysts and cercariae are developmental stages of a Harmostomid and the 6 species of snails listed above were hitherto unknown as vectors of flukes of this family. J.N.O.

(d) Müller has established the presence of the Lancet fluke, *Dicrocoelium dendriticum* (= *lanceolatum*), in wild rabbits in Thuringia and the Main valley and in hares in Thuringia. In many places sheep farming has been abandoned and cattle are kept in sheds thus making the establishment of *Dicrocoelium* infection no longer possible by domesticated animals, but he shows that, in localities where cattle and sheep are not grazed, wild rabbits especially can render possible the persistence and distribution of the parasite. J.N.O.

(e) Enigk records the finding of sporocysts of *Leucochloridium paradoxum* in *Succinea oblonga*. The molluscs were collected near Frohnau, north of Berlin, and, on dissection, the sporocysts were found situated in the intestine and liver. The author, in reviewing the present-day knowledge of this fluke, mentions the European localities where it has been found and the comparative infrequency of its occurrence in examined molluscs. *Succinea putris* is the only vector known hitherto in Central Europe. J.N.O.

(f) From 14 *Camelus bactrianus* originating from the Ural region Müller collected *Haemonchus contortus*, *Ostertagia marshalli*, *Trichostrongylus axei*, *T. probolurus* and *Parabronema skrjabini*. Brief descriptions are given of all except *Parabronema* which is fully described and illustrated. R.T.L.

(g) Enigk has found in 15 camels from the Ural region *Strongyloides papillosus*, *Cooperia onchophora*, *C. punctata* and *Dictyocaulus viviparus*. These species have not been previously recorded from the camel. There were also present: *Trichuris ovis*, *Nematodirus mauritanicus*, *N. helvetianus*, *Dipetalonema evansi*, *Stilezia globipunctata* and *Fasciola hepatica*. R.T.L.

452—Skandinavisk Veterinär-Tidskrift.

- a. HÜLPHERS, G.—“De hos pälsdjuren vanligast förekommande inälvparasiterna.” [The intestinal parasites occurring in fur-bearing animals.] XXIII (3), 133-154. [1933.]

(a) Hülphers gives an account of the principal parasites occurring in fur-bearing animals, particularly in Sweden. These are ascarids, hookworms and lungworms (*Eucoleus aerophilus*) in foxes, and *Strongyloides* sp., *Trichuris* sp., *Hymenolepis octocoronata* and *Fasciola hepatica* in nutria. *Pseudamphistomum truncatum* also occurs fairly frequently in the liver of foxes.

B.G.P.

453—Soil Science.

- a. HAGAN, H. R.—“Comparison of the distribution of nematode galls on the roots of pineapple varieties attacked by the nematode *Heterodera radiculicola* (Greef) Müller.” xxxv (1), 29-42. [1933.]
- b. HAGAN, H. R.—“Hawaiian pineapple field soil temperatures in relation to the nematode *Heterodera radiculicola* (Greef) Müller.” xxxvi (2), 83-95. [1933.]

(a) Hagan compared the resistance and tolerance to nematode attack of eight varieties of pineapple by comparing the number of terminal, non-terminal and total galls, number of galls per root and per foot of root.

No variety was immune and the comparison of galls per foot of root showed the infection to be comparatively uniform when the extent of the root systems was taken into account. Terminal root galls, indicating that growth ceased at the time of nematode invasion, varied greatly in number in the different varieties tested. The amount of reduction in root length due to nematode attack expressed the relative tolerance of the variety to the nematode. Two varieties, Hilo and Cayenne, were much more heavily galled than the others at the close of the experiment and it is thought that their cultivation would maintain a high nematode population in the soil. Tolerant hybrids have been developed and further work on these lines might provide a solution to the nematode problem in pineapple cultivation.

M.J.T.

(b) Hagan records temperatures attained by soil in pineapple fields in Hawaii and discusses the significance of high soil temperatures with regard to soil infestation by *Heterodera marioni*.

Uncovered soils were found to rise above 40°C. for 2 hours at $\frac{1}{4}$ inch depth except during the coldest months of the year. In July and October soil at 3 inch depth reached temperatures of from 38-40°C. for 2 hours daily. Soils covered with mulch paper averaged 7°C. higher than uncovered soils at $\frac{1}{4}$ inch depth and 6.5°C. higher at 3 inch depth. Since 40°C. for 2 hours 15 minutes is lethal to larvae of *H. marioni* summer ploughing and disking fallow fields are advantageous in infested areas.

M.J.T.

454—Southern Medical Journal.

- a. AHMANN, C. F. & BRISTOL, L. M.—“The effect of diet on the worm burden of children infected with *Necator americanus* and *Ascaris lumbricoides*.” XXVI (11), 959-962. [1933.]

(a) Ahmann and Bristol have followed the effect of a good diet on the worm burden of three children. When put on this good diet there was a 100 per cent. reduction in the ascaris infection. In one case the hookworm infection declined but in another, after a decline there was a re-infection and the egg count reached a high level. The authors have used the Stoll technique of counting eggs in the stool and consider this to be a reliable index of the worm burden.

P.A.C.

455—Sovetskaya Klinika.

- a. PYTEL, A. Y.—[A rare form of the verminous appendix.] XIX (1), 118-123. [English summary pp. 122-123.] [1933.]

(a) Cestodes are rarely found in the human appendix. Pytel lists 26 cases from the literature and presents two of his own. In one 4 segments of *Taenia saginata* and in the other 2 segments of *T. solium* were recovered. He thinks the segments may predispose, by mechanical or toxic irritation, to inflammatory processes without themselves causing inflammation.

B.G.P.

456—Sperimentale.

- a. SAVIGNONI, F. & MARIA, G. de.—“Azione di alcuni antielmintici sulla madre e sul prodotto del concepimento. (1. Danni provocati sperimentalmente negli animali gravidi colla somministrazione di dosi terapeutiche di tetracoloruro di carbonio, cloroformio, estratio etereo di Felce maschio e timolo).” LXXXVII (5/6), 557-584. [1933.]

(a) Savignoni and De Maria have investigated the toxicological effects of therapeutic doses of carbon tetrachloride, chloroform, ether-extract of male fern and thymol upon gravid rabbits.

The rabbits, which were in 4 groups of 3, were of a similar age, weight, variety and degree of pregnancy (18-20th day). The drugs were given daily for a week, each morning before food. As controls, 4 non-pregnant rabbits were given the same drugs. At the end of the week, or at previous abortion or death, the rabbits were autopsied. The findings, which are discussed at some length and illustrated by microphotographs of various tissues, show that thymol has no toxic effect; male fern is almost equally harmless although some animals are intolerant; chloroform is relatively harmless in small doses and in the absence of renal lesions; carbon tetrachloride is very toxic both to the gravid rabbit and to the foetuses. In the latter group one rabbit died on the 3rd day and the other two on the 4th; the liver and kidneys of the foetuses were, histologically, degenerate and scarcely recognizable.

B.G.P.

457—Spisy Lékařské Fakulty Masarykovy University v Brně, ČSR.

- a. STOKLASA, J. J.—“La résistance de l'anguillule de vinaigre aux différences de la pression osmotique.” XI, 127-130. [In Czech; German summary p. 129.] [1933.]
- b. STOKLASA, J. J.—“La survie de l'anguillule de vinaigre (*Anguillula aceti*) et du *Tubifex* (*Tubifex rivulorum*) dans un milieu à pH varié.” XII, 131-134. [In Czech; German summary p. 133.] [1933.]

(a) Stoklasa finds that *Anguillula aceti* is much more resistant than *Tubifex rivulorum* to 5M. concentrations of salts of Na, K and Ca, though both can withstand considerable differences in osmotic pressure. B.G.P.

(b) *Anguillula aceti* lives longer than *Tubifex rivulorum* in Sørensen's Glycocol buffer solutions between pH : 3.0 and pH : 7.9. Vitality depends not only on reaction but also on the chemical composition of the buffer.

B.G.P.

458—Sprawozdania z Posiedzeń Towarzystwa Naukowego Warszawskiego.

- a. STEFANKSI, W.—“Nicienie jezior tatrzańskich Cz. I.” [Nématodes des lacs du Tatra. 1-re partie.] XXVI (4), Reprint 1 p. [In Polish.] [1933.]

(a) Stefański gives a brief report on the nematodes collected from the lakes of the Tatra mountains. Out of 2,319 nematodes obtained in 85 samples, there were 15 genera and 34 species of free-living forms. There were only 2 or 3 worms per cubic centimetre of mud and the predominant type was *Ethmolaimus*. *Ironus ignavus* was also present whereas all species of *Chromodora* and *Dorylaimus stagnalis* were absent.

T.G.

459—Taiwan Igakkai Zasshi.

- a. WAKESHIMA, T.—“Experimental studies on the tropisms of the mature larvae of hookworms. IV. Report. Phototropism, thermotropism, and barytropism of the mature larvae of *Ancylostoma caninum*.” XXXII (11), [English summary pp. 152-153.] [1933.]
- b. YOSHINO, K.—“Studies on the postembryonal development of *Taenia solium*. Pt. II. On the youngest form of *Cysticercus cellulosae* and on the migratory course of the oncosphaera of *Taenia solium* within the intermediate host. Pt. III. On the development of *Cysticercus cellulosae* within the definite intermediate host.” XXXII (11), [English summary pp. 155-158]; (12), [English summary pp. 166-169.] [1933.]
- c. YOSHINO, K.—“Experimental studies on the formation of the scolex of *Taenia solium*.” XXXII (12), [English summary pp. 169-171.] [1933.]
- d. WAKESHIMA, T., YOSHINO, K. & NARIHARA, N.—“Application of ascaridol in the treatment of ancylostomiasis, and efficacy of the anthelmintics in relation to the species of hookworms and their sex.” XXXII (12), [English summary pp. 171-172.] [1933.]

(a) Wakeshima has found that mature filariform larvae of *Ancylostoma caninum* are positively phototropic, except when they have been confined in an incubator at 35-36°C. for 24 hours or at 40°C. for 2 hours, when they tend to be negatively phototropic. They are strongly positively thermotropic but exhibit no barytropic response.

P.A.C.

(b) In these two papers Yoshino continues his account of the development of *Cysticercus cellulosae* [see Helm. Abs., Vol. II, No. 286f], dealing

here with the stages in the musculature of the pig. He describes the vesiculation of the at first solid embryo, gives data for the size of the cysts at various ages, and explains the formation and artificial evagination of the scolex. Evagination can occur only after 60 to 70 days, this therefore being a non-infective period. B.G.P.

(c) Yoshino finds that complete evagination of the scolex of *Cysticercus cellulosae* requires from 4 to 24 hours in artificial intestinal juice at 38°C. Evagination is due to muscular activity originating in the scolex, and can occur in the absence of the bladder. B.G.P.

(d) Wakeshima, Yoshino and Narihara describe the treatment of 22 hookworm cases with Ascaridol and 20 with Ascaridol combined with carbon tetrachloride. The cures were about one-fifth and three-fifths of the cases respectively; there were a few toxic symptoms in both groups. Necator was expelled earlier than Ancylostoma and, in both species, the males before the females. B.G.P.

460—Trabajos del Instituto de Biología Animal.

- a. HOMEDES, J.—“Estudio del aparato cromosómico de los *Ascaris suilla* y *Ascaris vitulorum* Goëze.” I, 17-24. [1933.]
- b. GARCÍA, I.—“El *Stephanurus dentatus* en España. (Nota parasitológica).” I, 84-90. [1933.]

(a) Homedes has made a cytological study of the chromosome apparatus of *Ascaris suilla* and *A. vitulorum*. He shows that in *A. suilla* it is completely analogous with that in *A. lumbricoides*, as demonstrated by other researchers. The author was unable to discover any features, evidently distinctive, between *A. suilla* and *A. vitulorum*. J.N.O.

(b) García reports the occurrence of *Stephanurus dentatus*, for the second time in Spain, in native Andalusian pigs during the course of meat inspection at a Madrid slaughter-house. It was first reported by Lopez Neyra in 1929 in indigenous pigs from Granada. The author gives an historical review and detailed description of the parasite. J.N.O.

461—Transactions of the American Fisheries Society.

- a. BANGHAM, R. V.—“Parasites of the spotted bass, *Micropterus pseudaplites* Hubbs, and summary of parasites of smallmouth and largemouth black bass from Ohio Streams.” 63rd Annual Meeting, Columbus, Ohio. pp. 220-228. [1933.]

(a) Bangham examined 140 spotted bass for parasites and found that although the general incidence was low, 90·5 per cent. of adult and 86·2 per cent. of young fish were infected with one or more species. He similarly found that 89·5 per cent. of small mouth bass and 86·4 per cent. of large mouth bass from the same region were parasitized. Check lists accompany the article. T.W.M.C.

462—Transactions of the Arctic Institute. Leningrad.

- a. WAGIN, W.—“Zur Frage der Helminthofauna Pinnipedia.” III (2), 51-60. [German summary pp. 61-62.] [1933.]

(a) Wagin has examined helminth specimens collected, by an expedition to the Arctic in 1930, from the following Pinnipedia :—*Odobenus rosmarus*,

Phoca hispida, *Histiophoca groenlandica* and *Erignathus barbatus*. The parasites represented were the nematodes *Ascaris osculata* and an undetermined *Ascaris* sp.; the acanthocephalid *Carynosoma strumosum*; and the cestodes *Diphyllobothrium cordatum*, *D. lanceolatum*, *D. schistochillum* and *Pyramicocephalus anthocephalus*. In tables the host, date and locality of collection, site of parasite and names of helminths found are given.

J.N.O.

463—[Transactions on the Dynamics of Development.]

- a. MALEVITCH, I. I.—“ K Voprosu o Tsikle Razvitiya Anoplotsefalid.” [Contribution on the question of the cycle of development of the Anoplocephalidae.] VII, 194-206. [1933.]

(a) Malevitch discusses in detail the attempts that have been made by numerous workers to elucidate the life-history of the Anoplocephalidae. The work of Konsuloff (1929), and his theory of “lactocysts” conveyed to the young animal in its mother’s milk are especially considered, but it is pointed out that many facts render the theory improbable. The negative results obtained severally by Mönnig, Ssinitzin and Seddon are also discussed.

B.G.P.

464—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. LANGEN, C. D. DE. & EERKENS, J. W.—“ Nephroses and Ancylostomiasis.” XXVII (2), 195-198. [1933.]
- b. ARCHIBALD, R. G.—“ The use of the fruit of the tree *Balanites aegyptiaca* in the control of schistosomiasis in the Sudan.” XXVII (2), 207-210. [1933.]

(a) In the patients entering the hospital at Batavia there is a considerable amount of oedema which Langen and Eerkens have definitely associated with ancylostomiasis.

R.T.L.

(b) Archibald finds that the fruit, bark and other parts of the tree *Balanites aegyptiaca* possess lethal properties for molluscs, miracidia and cercariae. He suggests the planting of these trees along the banks of water courses and ponds so that the fruit may fall into the water and act as a cheap substitute for chemicals for the control of bilharziasis.

R.T.L.

465—Travaux de la Station Limnologique du Lac Baikal.

- a. LAYMAN, E.—“ Les vers parasitaires des poissons du lac Baikal.” IV, 5-93. [In Russian: German summary pp. 93-99.] [1933.]

(a) Layman records 31 species of helminths found during the examination of over 1,000 fish from Lake Baikal. Two new trematodes are described: *Allocreadium polymorphum* n. sp. from *Cottus kneri* and *Crepidostomum baicalensis* n. sp. from *Thymallus arcticus*. New nematodes are: *Comephoronema werestschagini* n. g., n. sp. from *Comephorus baicalensis* etc., and *Cottocomephoronema problematica* n. g., n. sp. from *Cottocomephorus grewingkii* etc. The genus *Cystidicola* is split up into two new sub-genera, *Cystidicola* and *Pseudocystidicola*, *C. skrjabini* n. sp. from *Onchorhynchus gorbusha* etc., being included in the latter.

D.O.M.

466—United Provinces Veterinary Magazine.

- a. DATTA, S. C. A.—“Histopathological studies on 12 cases of helminthic granuloma of the equine skin.” XXI (11), 1-2. [1933.]

(a) The skin in the condition known in India as *bursati* has been found by Datta to show the same histological features as that in cutaneous habronemiasis in Greece. Habronema larvae were found constantly in the eleven cases studied. R.T.L.

467—University of California Publications in Zoology.

- a. INGLES, L. G.—“Studies on the structure and life-history of *Ostiolum oxyorchis* (Ingles) from the California red-legged frog *Rana aurora draytoni*.” XXXIX (6), 135-162. [1933.]
- b. INGLES, L. G.—“Studies on the structure and life-history of *Zeugorchis syntomentera* Sumwalt, a trematode from the snake *Thamnophis ordinoides* from California.” XXXIX (7), 163-178. [1933.]

(a) Ingles has traced the life-cycle of *Ostiolum oxyorchis*, a lung fluke of *Rana aurora*, through *Planorbis* (G.) *parvus* and the dragonflies *Sympetrum illotum* and *Plathemis lydia*. *Rana boylei* and *P. (G.) vermicularis* were experimentally infected although natural infections do not occur. The development in the parthenita host occupies 60 to 70 days and in the definitive host 40 days. *O. confusus* (Ingles) is now recognized as a synonym of *O. oxyorchis*. R.T.L.

(b) Ingles finds that the eggs of *Zeugorchis syntomentera* are embryonated when laid and hatch only when fed to snails (*Physa gyrina*) in which they develop into xiphidiocercariae. These encyst on the tadpoles of *Hyla regilla* and continue to develop on being eaten by garter-snakes. The adults occur in the mouth and oesophagus of the snake. T.W.M.C.

468—Verhandlungen der Deutschen Zoologischen Gesellschaft.

- a. MATTES, O.—“Experimentelle Untersuchungen über die Zwischenwirtsfrage von *Dicrocoelium lanceatum*.” XXXV, 227-231. [1933.]

(a) Mattes summarizes the present position regarding the life-history of *Dicrocoelium dendriticum* and gives the results of his own experiments with *Helicella ericetorum*.

Keeping these snails on open-air plots which were sprayed with suspensions of fluke eggs, 100 per cent. infections of the snails were obtained. By the method of serial sections the very small initial stages of the life-history could be observed. The miracidia hatch in the intestine and make their way to the liver of the snail, where they metamorphose into complex structures with barely distinguishable contours, very unlike the usual sporocyst. The individuals of the next generation resemble typical sporocysts rather than rediae. The anterior gut of the redia is replaced here by a thin-walled duct through which the third, cercarial generation has been seen to escape. The cercaria is, as had been supposed, *Cercaria vitrina*. A more detailed account is promised for the *Zeits. für Parasitenkunde*. B.G.P.

469—Veterinarski Arhiv.

- a. BABIC, I.—“Parazitički crvi ustanovljeni kod životinja naročito domaćih u Jugoslaviji.” [Parasitic worms in animals, especially domestic animals, in Yugoslavia.] III, 100-107. [1933.]

(a) Babic lists the parasites of pigs, sheep, cattle, horses, cats, dogs and foxes, and various fur and feather creatures of economic importance in Yugoslavia. *Trichinella* is very rare and occurred only in hogs from the Drina and Vardar Banats. *Hepaticola hepatica* heavily infested 31.25 per cent. of the rats examined. R.T.L.

470—Veterinary Alumni Quarterly.

- a. JELEN, G. D.—“Studies of the nematode, *Oesophagostomum radiatum*.” XXI (3), 89-97. [1933.]

(a) Jelen finds a high incidence of *Oesophagostomum radiatum* in Ohio cattle. 89 per cent. are infected and 31 per cent. intensively so. He estimates that the economic loss to the packing industry during 1932-33 amounted to 0.96 hours of labour and the loss of 31 “casings” in every hundred head of cattle slaughtered. The nodules are formed only when the larvae burrow too deeply into the submucous tissue and die. Those which return to the intestinal lumen probably leave no evidence behind. Experimental evidence was obtained that the eggs and larvae withstand a fairly severe central Ohio winter. R.T.L.

471—Veterinary Journal.

- a. MAYALL, G.—“Blackhead in turkeys.” LXXXIX (10), 482. [1933.]
 b. TAYLOR, E. L.—“*Davainea proglottina* and disease in fowls. The pathogenicity of the common poultry parasites. An unknown factor in the causation of disease.” LXXXIX (11), 500-504. [1933.]
 c. CAMERON, T. W. M.—“The important helminth parasites of stock in the British Empire.” LXXXIX (11), 505-514. [1933.]

(a) Mayall stresses the fact that blackhead in turkeys is carried by *Heterakis gallinae* and suggests therefore that eradication of the disease will most easily be attained by eradicating the worm. He suggests several practical measures that may be brought into use. P.A.C.

(b) Fowls are extraordinarily tolerant to heavy infestation with *Davainea proglottina*. In experimentally infected chickens as many as 3,400 to 3,900 scolices were present eight weeks after infection without any evidence of retardation of growth or other pathogenic action. R.T.L.

(c) Cameron gives an account of the differential distribution within the British Empire of the more important helminths of stock. He points out that, under modern conditions of rapid communication between distant countries, the helminths are becoming more and more widely dispersed, limited as they are in some cases by climate or by the distribution of intermediate and reservoir hosts. The institution of quarantine measures is foreseen as a probable future method of controlling such dispersal. B.G.P.

472—Veterinary Medicine.

- a. MCGINNIS, C. L.—“ Filariasis in a dog.” xxviii (5), p. 180. [1933.]
- b. CREECH, G. T. & MILLER, F. W.—“ Nasal granuloma in cattle.” xxviii (7), 279-284. [1933.]
- c. STEINBACH, F. G.—“ A safe and effective treatment for filariasis in dogs.” xxviii (8), p. 320. [1933.]
- d. NEWSOM, I. E. & STOUT, E. N.—“ Proventriculitis in chickens due to flukes.” xxviii (11), 462-463. [1933.]
- e. MAGENS, H.—“ Anthelmintic treatment of small ruminants.” xxviii (12), 490-493. [1933.]

(a) Filariasis in dogs due to *Dirofilaria immitis* occurs in the southern States of the United States. The clinical symptoms are described.

R.T.L.

(b) Creech and Miller report that “ Snoring disease,” characterized by the development of tumours in the nasal cavities and the facial sinuses of cattle, is prevalent in Louisiana. It is identical with or very similar to that described by Malkani and others as due in India to a schistosome. A limited number of small round bodies fairly definite in outline were noted but not specifically identified as helminth eggs by the authors.

R.T.L.

(c) Steinbach has successfully treated a number of dogs with *Dirofilaria immitis*. The treatment consisted of one grain of arsenic trioxide and a level teaspoonful of powdered areca-nut daily; the former crushed over the food, the latter given on an empty stomach. The dosage is raised with the size of the dog.

R.T.L.

(d) Newsom and Stout describe ulceration in the proventriculus of chickens caused by *Psilostomum ondatrae* (Trematoda). The clinical symptoms are loss of appetite, closing of the eyes and emaciation. Death from starvation finally supervenes. The flukes irritate the lining of the proventriculus causing hypertrophy. There is a fibrinous exudate and marked inflammation. In some places small abscesses form. The presence of a large number of snails of unknown genus is reported near the chicken runs.

P.A.C.

(e) Magens, after discussing the general effects and diagnosis of parasitism in sheep and goats, describes the methods of treatment. He prefers to give anthelmintics in hard gelatine capsules, although semi-solid gelatine capsules or liquid may be used. He describes a balling gun for hard capsules and a combination syringe dose gun for soft capsules and liquids.

T.W.M.C.

473—Veterinary Record.

- a. BAYON, H. P.—“ Recent advances in our knowledge of poultry diseases.” xiii (28), 655-669. [1933.]
- b. BECKETT, E. F.—“ Oil of chenopodium as a vermicide for pigs.” [Correspondence.] xiii (50), 1369. [1933.]

(a) In this paper Bayon concerns himself first with *Davainea proglottina* as a parasite of the fowl. He discusses the incidence, pathology, life history and treatment of the cestode and its intermediate host. The second part of the paper deals with fowl paralysis in all its aspects. He describes the gross and microscopical lesions and discusses in some detail the etiology

of the disease. In this section *D. proglottina*, *Heterakis papillosa*, coccidia, filterable virus and nutritional disturbances are considered as possible factors in the causation and spread of the disease. P.A.C.

(b) Beckett gives a table of doses of oil of chenopodium for pigs of various ages. He gives the drug in linseed oil after 24 hours' starvation in the morning and follows next day with a dose of salts in the food. This has been used on thousands of pigs with excellent results. T.W.M.C.

474—Vida Nueva.

- a. KOURI, P. & BASNUEVO, J. G.—“ Diagnostico de la Teniasis.” xxxii (5), 201-213. [1933.]
- b. KOURI, P. & BASNUEVO, J. G.—“ Profilaxis de la distomatosis por *Fasciola hepatica*.” xxxii (5), 214-224. [1933.]

(a) Kouri and Basnuevo discuss the clinical diagnosis of taeniasis due to *T. saginata* with particular reference to 20 cases they have observed. They are of the opinion that, in microscopic examinations, ova appear in the stool in a high percentage of cases (80 per cent. according to their statistics). By prior macroscopic examination and sieving of the faeces segments were observed in only 3 cases which did not show ova under the microscope. They consider the administration of a saline purge and the examination of the first two evacuations favourable to the finding of ova. J.N.O.

(b) Kouri and Basnuevo deal with possible measures of attack against the various stages in the life-cycle of *Fasciola hepatica* and are of the opinion that elimination of the adult flukes is the most feasible. They discuss prophylactic measures and mention that the use of emetine has been beneficial in human cases which have come under their notice. The dose is given as a total one of 5 mg. of the drug per kg. body weight for humans and animals. J.N.O.

475—Virginia Medical Monthly.

- a. HALL, M. C.—“ Drama anthelmintica: a play without dialogue.” lx (8), 496-504. [1933.]

(a) In Act I of Hall's drama a series of helminth-infested patients parade before the physician who prescribes appropriate anthelmintics. In Act II the drugs are administered. In Act III the patients again parade for advice in prophylaxis. Helminthologists interested in the amateur dramatic movement will be bitterly disappointed by the absence of dialogue. B.G.P.

476—Zeitschrift für Fleisch- und Milchhygiene.

- a. KOLBE, F.—“ Das Dioptral-Trichinoskop.” xlv (6), 106-107. [1933.]

(a) Kolbe describes a new trichinoscope by Leitz embodying some new devices. The compressorium cannot be removed from the carrier until the whole of it has been passed through the apparatus, and it cannot be moved backwards. The projected image of the preparation is viewed through a large reading lens, so focussed that the observer's eye is relaxed. B.G.P.

477—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

- a. SSOLONITZIN, J. A.—“Mehrfacher Tetrathyridios der serösen Höhlen des Hundes.” XLV (2/3), 144-156. [1933.]
- b. IWANOFF, X.—“Untersuchungen über die sog. Pentastomen oder Trematodenknötchen in den Gekröslymphknoten von Rind und Büffel.” XLV (2/3), 157-190. [1933.]

(a) From the examination of a dog which died of chronic pericarditis, Ssolonitzin found that the pericardial, thoracic and abdominal cavities were parasitized by *Tetrathyridium elongatum* and by certain polymorphous parasites. The latter superficially resembled sterile hydatids but the cuticle lacked the characteristic lamination, and the author considers them to be sterile forms of tetrathyridia, especially as some intermediate types were present. A cat was fed with the tetrathyridia and, 26 days later, was found to contain *Mesocestoides lineatus* in the intestine and some tetrathyridia in the body cavity. Tetrathyridia lived for 18 days *in vitro* in salt solution at 20°-25°C., and some of these formed bladder-like processes resembling the polymorphous parasites found in the dog. B.G.P.

(b) Iwanoff points out that the greenish foci to be found in the mesenteric lymphatic glands of oxen and buffaloes may be caused by nematodes, trematodes or pentastomes. The present paper is mainly concerned with the lesions due to larval pentastomes (*Linguatula*) which were found in 86 per cent. of 200 oxen and 65 per cent. of 212 buffalo. B.G.P.

478—Zeitschrift für Parasitenkunde.

- a. HSÜ, H. F. & HOEPPLI, R.—“Die Oesophagusdrüsen einer *Proleptus* sp. und von *Thelazia callipaeda* (Nematoda).” VI (3), 273-276. [1933.]
- b. HSÜ, H. F.—“A study of the oesophageal glands of some species of Spiruroida and Filarioidea.” VI (3), 277-287. [1933.]
- c. BRAND, T. v., HOLTZ, F. & VOGEL, H.—“Experimentelle Verkalkung unter dem Einfluss des Calciosefaktors bei Befall mit tierischen Parasiten.” VI (3), 308-322. [1933.]
- d. GEBAUER, O.—“Ein neuer Wiederkäuer-Peitschenwurm—*Trichuris gazellae* n. sp.—aus der Damagazelle.” VI (3), 323-325. [1933.]
- e. ENIGK, K.—“Einige Nematoden aus der Nutria.” VI (3), 326-331. [1933.]
- f. KREIS, H. A.—“Ein neuer parasitischer Nematode aus *Corucia zebrata* (Scincidae; Reptilia). *Ganguleterakis triaculeatus* n. sp.” VI (3), 332-338. [1933.]
- g. SCHEER, D.—“Über einen mutmasslichen Blutgefässparasiten des Flusskrebse (*Potamobius astacus*).” VI (3), 478-480. [1933.]

(a) Hsü and Hoepli have been induced to re-examine material of a *Proleptus* sp., from the stomach wall of a shark, *Chiloscyllium indicum*, following upon the publication of a detailed description and discussion on the method of attachment and food absorption of *P. obtusus* Duj. by Schuurmans Stekhoven and Botman. While agreeing with the latter writers that the food consists chiefly of wound secretion and tissue cells modified by the secretion of the oesophageal glands the authors do not believe that the oesophageal glands, said to open into small teeth in the base of the oral cavity in *P. obtusus*, do so in their specimens which, unfortunately, were impossible to identify specifically. Hsü and Hoepli find the oesophagus distinctly divided into anterior muscular and posterior glandular portions.

A dorsal and two subventral glands, all highly developed and of a ramifying, tubular and multinucleate type, are present. The anterior ends of the glands are approximately at the same level behind the border between muscular and glandular portions, that of the dorsal one being very slightly anterior to those of the subventral glands. The authors could not determine with certainty if tooth formations existed.

A comparison is made with *Thelazia callipaeda*. While the glands of this species are of the lobed, tubular and multinucleate type the oesophagus is uniform and not divided into muscular and glandular portions. The three glands arise at the same level behind the anterior end of the oesophagus but are less well developed and their openings are within a short distance of each other, that of the dorsal gland being the most anterior. The authors show that the degree to which the oesophageal glands develop in parasitic nematodes is closely related to the manner in which food is absorbed, those species usually anchored in the tissue by the head end requiring highly developed glands whilst others, such as *T. callipaeda* found free in the conjunctival sac and showing no signs of external digestion, having but slightly developed glands.

J.N.O.

(b) Hsü has studied the oesophageal glands of representatives of the superfamilies Spiruroidea and Filarioidea and found them similar in forms in which the oesophagus is divided into anterior and posterior portions, unconstricted at their junction, and without an enlargement at the anterior end of the posterior oesophageal portion.

In the Spiruroidea, *Physaloptera clausa* and *Spirocerca sanguinolenta*, which have no distinct oesophageal constriction, have all 3 glands, which are of a branched tubular and multinuclear type, confined to the posterior portion of the oesophagus. In *Camallanus intermedius*, which possesses an oesophageal constriction, all 3 glands are mononuclear and only the 2 subventral glands, of a branched tubular type, are confined to the posterior portion of the oesophagus. The dorsal gland is of the non-branched tubular type and extends to both anterior and posterior oesophageal portions.

In the Filarioidea, *Dirofilaria immitis*, which lacks both oesophageal constriction and enlargement at the anterior end of the posterior portion, has all 3 glands, of the branched tubular and multinuclear type, confined to the posterior portion of the oesophagus. By contrast, in *Dracunculus houdemeri*, the possessor of an oesophageal enlargement but without a distinct constriction, the 3 glands are of the tubular mononuclear type and are confined to the posterior portion of the oesophagus. The 2 subventral glands, however, extend anteriorly only to the posterior margin of the enlargement of the oesophagus.

J.N.O.

(c) Brand, Holtz and Vogel have investigated the effects of large doses, administered orally, of "calcium factor," i.e., a radiation derivative of Ergosterol, on various animal parasites and the tissues surrounding them.

In infections with the helminths *Trichinella spiralis*, *Cysticercus pisiformis* and *C. fasciolaris* and the coccidium *Eimeria stiedae* it was possible to produce,

experimentally, lime deposits in the host's tissue in the vicinity of the parasites. In infections with *Schistosoma mansoni* eggs, *Schizotrypanum cruzi* and Sarcosporidia no such deposits could be produced.

With *Trichinella* calcification of the connective tissue capsule began 2 to 3 months after infection or at a time when spontaneous calcification did not prevail. In the case of *Cysticercus pisiformis* only necrotic portions of the liver tissue were involved and the authors regard this as probably a non-specific reaction since similar calcification was produced by drawing cotton, catgut or silk threads through liver tissue and subsequently overdosing with "calcium factor." In the remaining positive cases calcification is considered as probably due to a specific influence on the part of the parasites. Although no calcification occurred around the *Schistosoma* eggs, reactions were obtained which indicated that it could be produced experimentally within the eggs.

J.N.O.

(d) Gebauer records the occurrence of *Camelostrongylus mentulatus* (= *Ostertagia mentulata*) from the abomasum and for the first time, *Trichostrongylus colubriformis*, and, from the caecum, *Trichuris gazellae* n. sp. and *T. ovis* in 4 *Gazella dama* from the Zoological Gardens at Schönbrunn. The author briefly describes the new species of whipworm and shows it to be separable from *T. ovis*, *T. globulosa*, *T. discolor* and *T. skrjabini*, the species hitherto described from ruminants, by the slenderness of the spicule and fineness of the spicular sheath, by the presence of papillae on the lateral edge of the cloaca and by the shape of the egg.

J.N.O.

(e) Enigk deals with 4 nematodes from the Coypu rat, *Myocastor coypus*, which have been inadequately described or specifically misrepresented in literature records.

A *Strongyloides* mentioned by Sprehn in 1930 has been identified with *S. papillosus* but the author shows, from the structure of the lips and ovaries, that it approaches, in the parasitic generation, *S. chapini* and provisionally regards it as this species. He also proposes for it the name *S. nutriae*, should it disagree with *S. chapini* in the free living generation, when found.

Trichocephalus myocastoris becomes *Trichuris myocastoris* n. comb. It differs from *T. leporis*, its nearest relation, in possessing a much shorter spicule, a spicular sheath armed with fine spines, a shorter ductus ejaculatorius and longer vas deferens. The author also records *Trichostrongylus retortaeformis* for the first time from this host.

Heligmosomum sprehni n. sp., from the stomach and intestine, is described and considered to be the *H. polygyrus* of Heidegger and of Walther. It is shown to be distinct from *H. alpha*, *H. beta*, *H. gamma*, *H. delta* and *H. nematodiriformis* when body lengths and other morphological details are examined.

J.N.O.

(f) Kreis gives a morphological description of *Ganguleterakis triaculeatus* n. sp. from the intestine of *Corucia zebrata*, taken in the Solomon Islands, and preserved in the Natural History Museum, Basel. It differs in two major respects from the previously described species, *G. gangula* and *G. spumosa*, by possessing but 6 pairs of bursal papillae and by the occurrence of 3 spears within the lumen of the oesophagus, a peculiarity not described in the hitherto known species.

J.N.O.

(g) Scheer records numerous egg-like bodies measuring $98\ \mu$ by $62\ \mu$ from the blood of the crayfish *Potamobius astacus*. The shell, which was about $10\ \mu$ thick and unoperculated, may have been that of a trematode egg but no parasites were found.

B.G.P.

479—Zeitschrift für Vergleichende Physiologie.

- a. HARNISCH, O.—“Untersuchungen zur Kennzeichnung des Sauerstoffverbrauchs von *Triaenophorus nodulosus* (Cest.) und *Ascaris lumbricoides* (Nemat.).” XIX, 310-348. [1933.]

(a) Harnisch finds that the amount of O_2 taken up by *Triaenophorus nodulosus* or by *Ascaris lumbricoides* varies with the medium's O_2 -partial pressure. With *Ascaris* the amount is constant for unit time, with *Triaenophorus* it decreases more or less regularly during the first few hours. It is argued that with *Triaenophorus* there is an oxygen debt and that in both cases the O_2 serves to oxidise substances formed by ‘Anoxybiotic’ metabolism. *Ascaris* fragments excrete the same amount of CO_2 under 21 per cent. or 0.8 per cent. O_2 , while absorbing different amounts of O_2 , and it is suggested that the ‘oxybiotic’ processes work with the Respiratory Quotient = 0.

R.H.H.

480—Zentralblatt für Bakteriologie. 1 Abteilung, Originale.

- a. GALLI-VALERIO, B.—“Notes parasitologiques et de technique parasitologique.” CXXIX (5/6), 422-433. [1933.]
- b. SCHMID, F.—“Der Einfluss von Stall- und Weidehaltung auf den Parasitenbefall bei Schafen, insbesondere bei Lämmern. CXXX (5/6), 338-349. [1933.]

(a) Galli-Valerio contributes several notes on the geographical distribution and multiple infections of different parasites, including helminths; under their hosts. His list embraces 55 hosts and records a new species in *Arctomys marmota* named *Oxyuris marmotae*. The author draws attention to the dangers attendant upon introducing, from other districts and for restocking purposes, birds or animals which harbour parasites and may act as disseminators of infections detrimental to existing stocks. A certain danger also arises from parasites accidentally introduced into abnormal hosts which act as carriers, and cases are recorded in which foxes ingested and disseminated viable eggs of *Ascaris lumbricoides* and a marten anoplocephalid eggs. The author considers from his researches on the life-cycle of anoplocephalids that these cestodes require an intermediate host such as a coprophagous beetle. Under “Technique” it is noted that *Dibothriocephalus latus* eggs kept in water at room temperature since 29th December, 1907, still retain their characteristic form, but several have lost the operculum.

J.N.O.

(b) Schmid has collected and analysed data on the seasonal and age-incidence and intensity of the principal internal parasites of lambs, yearlings and ewes. The data are based on the examination of 753 rectal faeces taken in April, June and September from a total of 363 lambs, 222 yearlings and 168 ewes. They show that lambs acquire *Strongyloides*, *Nematodirus*, *Trichuris* and coccidia before going out to grass (April); by June stomach-worms and *Moniezia* are most numerous, while *Strongyloides* and coccidia

are decreasing. By September, lancet flukes and lungworms appear. Yearlings and ewes show an all-round decrease in intensity in June and again in September, the incidence remaining fairly constant. Each parasite is discussed in turn. The author is aware of local circumstances which necessitate caution in generalizing from his results, e.g., an unusually dry summer and cold winter preceding the experiment. B.G.P.

481—Zoologica. (New York.)

- a. McCQUIRE, G. W.—“Nematode parasites of mammals.” xv (2), 29-47. [1933.]

(a) The author has arranged under a host list and a parasite list the identifications of nematodes made by him from material collected from mammals dying in the New York Zoological Park during 1931. Brief descriptive notes are appended. No new species is recorded. R.T.L.

482—Zoologischer Anzeiger.

- a. PETERS, N. & PANNING, A.—“Die Chinesische Wollhandkrabbe (*Eriocheir sinensis* H. Milne-Edwards) in Deutschland.” civ, Supplement, 180pp. [1933.]
- b. BYCHOWSKY, B.—“Beirag zur Kenntnis neuer monogenetischer Fisch-trematoden aus dem Kaspisee nebst einigen Bemerkungen über die Systematik der Monopisthodiscinea Fuhrmann 1928.” cv (1/2), 17-38. [1933.]
- c. SCHUURMANS STEKHOVEN, jr., J. H.—“Bryozoen und Nematoden.” cv (1/2), 57-59. [1933.]
- d. HEINZE, K.—“Revision von *Gordius flavus* Linstow 1906 und *Gordius flavus* G. W. Müller 1927.” cv (3/4), 106-109. [1933.]

(a) Peters and Panning have monographed the Chinese “Mitten Crab,” *Eriocheir sinensis*, from the aspect of its recent spread to the rivers of northern Germany and along the North Sea and Baltic coasts, where it is fast becoming a pest of economic importance, destroying fish, shellfish and fishing-nets. In 1932 it extended coastwise from the mouth of the Rhine to Königsberg and inland to Mainz, Prague and Breslau. As the authors note (pp. 41 & 42) this crab is one of the carriers of the lung-fluke, *Paragonimus westermani*, in China, Korea and Japan. In Europe, however, the first intermediary (*Melania* spp.) is not present, and crabs are in any case well cooked before being eaten. B.G.P.

(b) Bychowsky describes 9 new monogenetic trematodes collected during an expedition to investigate the parasitic fauna of fish of the Caspian Sea. The hosts, which are given under the parasites they respectively harbour, were taken from the Volga delta and near Ssara Island, not far from Lenkoran. The flukes were found on the gills or fins and sometimes on both. The forms dealt with are: *Gyrodactylus atherinae* n. sp., *G. parvicopula* n. sp., *G. latus* n. sp., *G. cobitis* n. sp., *Dactylogyrus chraniulowi* n. sp., *D. affinis* n. sp., *D. frisiai* n. sp., *D. zandti* n. sp. and *D. haplogonus* n. sp. The new species of *Gyrodactylus* are compared with other known European forms of this genus in a tabular review.

The author discusses the systematic relationships of the families, and their respective genera, in the Monopisthodiscinea and proposes Dactylogyridae n. fam. and Dactylogyrinae n. subfam., which are defined, for the type genus *Dactylogyrus* Diesing, 1850. J.N.O.

(c) Schuurmans Stakhoven, jr. discusses the oecological inter-relations of brackish water and marine nematodes and Bryozoa with special reference to the preponderance of *Adoncholaimus thalassophygas*, in a total of 9 nematode species, associated with *Membranipora membranacea* var. *erecta* from the canal near Tjum, south of Franeker, Friesland, Holland, which he examined. The author considers the presence of large numbers of immature specimens, indicative of an increase in the *Adoncholaimus* population, may have some relation with the amount of detritus present since later examinations of Bryozoan colonies showed that exceedingly few nematodes were to be found in places where the tidal current was very strong. J.N.O.

(d) Heinze found, during a re-examination of Gordiid material preserved in the Berlin Zoological Museum, that specimens recorded as *Gordius flavus* Linstow, 1906 belonged to different species and he therefore redescribes *G. flavus* from male and female specimens. In 1927 G. W. Müller described a *Gordius flavus* and the author, finding that it did not agree with Linstow's species, proposes the name *Gordius mülleri* nom. nov. for it owing to the name *flavus* being preoccupied. *Gordius hawaiiensis* n. sp. from the Sandwich Islands was represented by a male specimen and although originally designated as a type for *G. flavus* the author found it differed so greatly in essential characters from Linstow's description that it was necessary to designate it as a new species. A third form examined was found to belong, in all probability, to *Gordius longissimus* Römer, 1895. J.N.O.

Non-Periodical Literature.

- 483 — BAUMGART, W. — "Über das Verhalten der Portallymphknoten bei der Distomatose des Rindes." Dissertation, Leipzig. 27 pp. [1933.]

Baumgart has studied the pathology of the portal lymphatic glands in 21 cattle infested with *Fasciola hepatica*. Dividing his material into 3 degrees of severity as displayed by lesions in the liver, he finds that sinus catarrh is the characteristic lesion in the glands in relatively light infestations. With increasing severity the glands become greatly enlarged and discoloured with bile pigments, and finally strands of connective tissue appear in the sinus tracts and the cortical follicles. B.G.P.

- 484 — HOLZHAUER, A. — "Fütterungsversuche mit Trichinellen beim Hunde." Inaugural Dissertation, Leipzig. 38 pp. [1933.]

Holzhauser infected 8 dogs with *Trichinella spiralis* in order to study the symptomatology and pathology of the disease. The dogs took infested pork readily but rat's flesh with great reluctance. Diarrhoea set in after 2 to 7 days. No oedema was observed and no muscle pains were manifested. Faecal examinations were negative with one exception. The blood showed a leucocytosis with, in 6 cases, an eosinophilia of from 16 per cent. to 34 per cent. followed by a lymphocytosis. Five of the dogs were examined post mortem, from 120 to 180 days after infection, but no larvae were found. B.G.P.

- 485 — METSCH, H.—“Untersuchungen über die Bedeutung wandernder Spulwurmlarven als Überträger von Infektionskrankheiten.” Inaugural Dissertation, Leipzig, 53 pp. [1933.]

Metsch fed large numbers of embryonated eggs of *Ascaris lumbricoides* and *Parascaris equorum*, together with cultures of aerobic and anaerobic pathogenic bacteria, to guinea pigs. Dissections showed that the ascarid larvae had carried out the usual migrations, but no bacterial complications followed the passage of larvae through the intestinal wall, apart from a single case of anthrax. The author reviews the literature on this question at great length. A suggestion that ascarid larvae may make the migration (from intestine *via* liver and lungs to intestine again) repeatedly, is put forward on the basis of finding some well developed larvae in the lungs.

B.G.P.

- 486 — MEYER, A.—“Dr. H. G. Bronns Klassen und Ordnungen des Tier-Reichs wissenschaftlich dargestellt in Wort und Bild. Acanthocephala. 2 Lieferung. Leipzig, pp. 333-582. [1933.]

This second part [see Helm. Abs., Vol. I., No. 436] completes Meyer's monograph on the Acanthocephala in Bronn's “Klassen und Ordnungen des Tierreichs.”

The first part dealing with systematics and general morphology contained sections A to D. In section E, called “Physiognomik,” Meyer shows that the Palaeacanthocephala are mainly an aquatic Order and the Archiacanthocephala a terrestrial one. The section contains a host list (pp. 338-379) arranged zoologically and a list in which the 12 families with their appropriate species are grouped under zoogeographical regions (pp. 388-403). Section F (“Typologie”) deals with the anatomy and histology of the presoma (proboscis and receptaculum) and body respectively, considered under systems of organs, and also deals with ontogeny. Section G discusses phylogeny. Finally, in section H there is a key to the 2 Orders, 12 families and 58 genera, and brief notes on technique. There are 24 pages of references and complete indexes.

B.G.P.

- 487 — MORTENSEN, T.—“Ophiuroidea.” In: Danish Ingolf Expedition, IV (8), Copenhagen, 121 pp. [1933.]

On page 74 of his monograph on the Ophiuroidea collected by the “Ingolf,” Mortensen briefly describes a parasite from the gonads of *Ophiura sarsi*. It is a red, pea-sized sac containing eggs or ciliated embryos. Each of the latter has a ciliated “pharynx” and an organ resembling a statocyst. The parasite, *Nidrosia ophiuræ* n. g., n. sp., is of uncertain Class but “One might perhaps suggest it to be a trematode.”

B.G.P.

- 488 — ROETTIG, K.—“Untersuchungen über die Wirkung von Kupfersalzen auf Strongyliden, Trichinen und Bakterien.” Dissertation, Giessen, 47 pp. [1933.]

Roettig tested the action of “Sklerostomex” and other copper compounds against embryos of lungworms and found them useless in dilutions at which they might be used as anthelmintics. Embryos lived longer in dilute solutions of copper licks than in physiological saline. Trichinous pig meat, soaked in copper sulphate in 0.01 per cent., 0.1 per cent., and 1 per

cent. concentrations, remained infective except in the 1 per cent. solution. Similarly, *Sklerostomex* in concentrations up to 0.5 per cent. had no effect on bacterial cultures. The author is satisfied, in opposition to von Linden, that these copper preparations are of no anthelmintic value. B.G.P.

- 489 — SCHÖNENBERGER, A.—“Magen- und Darmerkrankungen der Biberratte (*Myocastor coypus* Mol.) infolge Zooparasiteninvasion und deren Bekämpfung.” Dissertation. Zürich. 59 pp. [1933.]

Schönenberger finds that nutria in Switzerland have heavy infections of *Hymenolepis octocoronata*, *Trichostrongylus* sp. and coccidia, often resulting in a gastro-enteritis that may prove fatal.

Of imported nutria about 41 per cent. of the clinically healthy and 96 per cent. of the obviously diseased carry parasites, the disease symptoms being associated with a larger number of parasite eggs than in healthier carriers. Various anthelmintics proved unsatisfactory, and the author recommends thorough cleaning of the enclosures accompanied by a five weeks' intensive diet of carrots. The carrots cause a disappearance of the symptoms (mainly: loss of weight, fur, and fur lustre) and also appear to lead to a reduction in the worm burden. The prophylactic measures are essential, but ineffective without the carrots. B.G.P.

- 490 — WESSEL, G.—“Ueber die Beziehungen zwischen Kohle und Oleum Chenopodii und ihren Einfluss auf dessen pharmakologische Wirkung und klinische Verwendung.” Inaugural Dissertation, Berlin, 30 pp. [1933.]

Wessel finds that the amalgamation of oil of chenopodium with medicinal charcoal removes the toxicity of the drug without impairing its anthelmintic effect. She has tested the toxicity of the mixture kymographically on leeches and clinically in dogs, and its anthelmintic power on 21 dogs infected with ascarids, in 19 of which it was successful. B.G.P.

- 491 — WÜLKER, G. & SCHUURMANS STEKHOVEN, jr., J. H.—“Acanthocephala” in Grimpe, G. & Wagler, E., “Die Tierwelt der Nord- und Ostsee,” Leipzig, Lieferung 24, Teil VIe, 64 pp. [1933.]

Wülker and Schuurmans Stekhoven deal with the Acanthocephala for Grimpe & Wagler's “Die Tierwelt der Nord- und Ostsee.” In this section first a general account of the group, including morphology, geographical distribution, mode of life, reproduction, development and so forth is given. There follow an invertebrate and vertebrate host-parasite list and also information on Acanthocephalids which have one and two intermediate hosts. Finally, a brief systematic review of the genera and species is given. The monograph contains 54 clear illustrations and a good bibliography. J.N.O.

- 492 — WÜLKER, G. & SCHUURMANS STEKHOVEN, jr., J. H.—“Nematoda” in Grimpe, G. & Wagler, E., “Die Tierwelt der Nord- und Ostsee,” Leipzig, Lieferung 25, Teil Va: Allgemeiner Teil, 64 pp. [1933.]

Wülker and Schuurmans Stekhoven describe the characters of the Nematoda with special reference to marine forms, both free-living and parasitic. Anatomical characters, nervous, excretory, and reproductive systems, and sense organs are described, methods of locomotion and feeding

are dealt with, together with distribution, habitat, development and life cycles. The economic importance of nematodes both free-living and parasitic is discussed.

M.J.T.

- 493 — ZUCKERMAN, S.—“Functional affinities of man, monkeys and apes.”
London, xviii + 203 pp. [Helminths: see pp. 87-89.] [1933.]

In the course of this book Zuckerman points out that the genus *Enterobius* is the only helminthic genus which is of interest from the point of view of the evolution of the Primates. Each species of *Enterobius* is restricted to one genus of monkeys, suggesting that the evolution of the parasite is slower than that of the host. *Subulura distans* from *Cercopithecus sabaeus* is a recent parasite and its distribution suggests that it has evolved since monkeys were introduced into the island of St. Kitts in the West Indies.

P.A.C.